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TUBERCULOSIS

Tuberculosis and the General Practitioner

Eric H. Dobbs, M.D.
Manitoba Sanatorium, Ninette, Manitoba*

In the past few years there have been many articles and papers dealing with tuberculosis specialties, particularly in the field of active treatment. These in general are of but slight interest to the practicing physician.

Little has been written about symptomatology and diagnosis. Even less space has been devoted to the role the practitioner must play if the goal of our anti-tuberculosis campaign is to be won; that goal being, of course, the complete eradication of tuberculosis. This is a very high ideal indeed. It will be achieved in the end, but only through the untiring efforts of, and the complete co-operation between the practicing profession and tuberculosis workers.

There seems to be a feeling current amongst some of the profession that tuberculosis is now having its last fling, so to speak, and is on the way out. This trend of thought is due in part to the publicity which has been given the augmented program of mass surveys and travelling clinics, and in part due to the introduction of a promising chemotherapeutic agent. Such thinking is dangerous if it decreases the awareness of the tuberculosis problem.

One has only to look at the war-torn countries of Europe to see the results of a breakdown of tuberculosis control. It was reported at the 1947 convention of the National Tuberculosis Association that the death rate per 100,000 population in Berlin at the present time is 302; in Warsaw, 500. The death rate in Manitoba in 1945 set a new low for this province of 42.7 per 100,000 population. This may seem an acceptable figure until we compare it with the records of Ontario and Minnesota in the same year, which were 25.8 and 25.1 respectively.

There is no such thing as a half-way program against tuberculosis. It is either an all-out drive, and to the finish, or else this disease is destined to become endemic among us for all time.

Responsibility for the diagnosis of tuberculosis has not been entirely lifted from the shoulders of the general practitioner, as some would like to believe. For no matter how well a survey program may be conducted, a certain percentage of citizens will fail to have chest plates, either due to the normal shifting about of population, due to illness, due to unawareness, or just plain indifference. As a result there may be at large in the community a citizen with incipient or active tuberculosis, who may carry on normal activities for many months, spreading tubercle bacilli all the while. From amongst his contacts a number of new cases may arise.

The physician during the course of his duties in the community will see those who are ill. Many of these, particularly office patients, seem to have complaints of a minor nature; perhaps a loss of appetite, an unexplained loss of weight, unusual weakness or fatigue, a low-grade fever, or a slight cough. How easy it is to dismiss these complaints as being due to an improper diet, lack of sufficient rest, a mild anemia, or a touch of bronchitis. How very simple it is to prescribe an iron and liver pill, a multiple vitamin mixture or a cough medicine. And yet these complaints are among the commonest early symptoms of tuberculosis. How much safer it would be to supplement the physical examination with a tuberculin test, and then to follow up the positives with an x-ray of the chest.

Recently in over 100 centres in America there has been carried out a program of routine chest x-raying of patients entering general hospitals. The percentage of tuberculosis cases found by this method was three times as high as among the general population. These people, on their way to general hospitals, pass through your offices. The decision to perform an otherwise elective operation in the presence of unknown tuberculosis may seriously jeopardize the future health of such a patient. The unwise choice of an anaesthetic agent has been known to cause a flare-up of incipient disease.

To place this problem in its proper light one has only to note that tuberculosis in this country continues to take more lives than any other communicable disease, with the exception of pneumonia; and, that it causes more deaths in the age group from 15 to 35 than any other disease. Is this not a challenge to all of us?

As a basis for discussion, 50 consecutive new admissions to Manitoba Sanatorium have been analyzed. Some of these cases were admitted as late as July, 1947. It is hoped by such an analysis to present a true picture of tuberculosis as we see it today.

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MEDICAL FACULTY
McGILL
UNIVERSITY

Sex and Age

In this group there was a preponderance of the female over the male sex, 27 as against 23 respectively. The eldest was 64 years of age, and the youngest was 13. The average age of the group was 28 years. Or, to put it another way, 40 (80%) were in the 15 to 35 age group mentioned above.

Contact

A definite history of contact was established in 25 (50%) cases. It was close (usually within the immediate family) in 20, and remote in 5. What is perhaps more important is that no history of contact could be established in 25 cases.

Past History

Among significant previous illnesses there were pleurisy with effusion in 5; pneumonia, 6; erythema nodosum, 1; diabetes, 2; frequent chest colds, 7; and a previous diagnosis of tuberculosis in 3.

In the latter group, the diagnosis of tuberculosis was made a number of years previously, but the disease was considered inactive and treatment not indicated. X-rays were taken at regular intervals and hospitalization effected at the first sign of activity.

The five cases of pleurisy with effusion occurred a number of years ago, before the tuberculous nature of this condition was fully realized. Consequently treatment ceased when the acute phase of the illness was over. A period of several months of rest, which we now insist upon, was not undertaken.

Erythema nodosum is considered to be a tuberculous manifestation. Plates taken during, or shortly after, the acute episode will commonly reveal enlargement of one or both lung roots.

Diabetes and tuberculosis are commonly associated conditions, and despite what you may read in some therapeutic texts, the presence of one usually does complicate treatment of the other, in all but mild cases of diabetes, or early cases of tuberculosis.

Classification

In this series minimal cases numbered 15 (30%), moderately advanced 21 (42%), and far advanced 14 (28%). We see at once that 70% of the total were in a moderately or far advanced stage at the time of diagnosis. This observation is by no means common to this group alone. It is still the rule, rather than the exception, as we would like it to be. Where then is early diagnosis? Is it a myth? Not exactly. We are now seeing more cases in the minimal stage, and less in the far advanced stage than ever before. But it is quite plain that there is much room for improvement.

Laboratory Findings

The methods used for isolating the tubercle bacillus were as follows: Dried sputum smear in 24 cases, sputum concentrates in 2, examination of fasting gastric contents in 7, culture of fasting gastric contents in 12, and examination of the urine in 1. A total of 46 positive findings in all.

In the latter case, tubercle bacilli were not found in the sputum. However, they were found in the urine on two separate occasions; and on examination of the spinal fluid a pellicle formed which was considered to be typical of tuberculous meningitis.

Tubercle bacilli were not found in spite of repeated tests in 4 cases, 3 of which were minimal and 1 moderately advanced.

It is notable that 26 (52%) of the cases would be considered open or infective at the time of diagnosis.

Symptoms

There were no entrance complaints in 11 (22%) of this series. However, on inquiry 6 of these did admit to minor variations from their normal state of health. The remaining 5, all minimal, had no complaints whatsoever.

Of the 18 (36%) patients who consulted their physicians, there were 7 far advanced, 6 moderately advanced and 5 minimal cases.

In the remaining 32 (64%), tuberculosis was a chance finding. This group was made up of 10 minimal, 15 moderately advanced and 7 far advanced cases.

The symptoms listed in order of frequency of occurrence were as follows: Loss of weight, 33; fever, 33; cough, 33; expectoration, 32; weakness and/or fatigue, 27; pain in the chest, 21; loss of appetite, 15; dyspnea, 12; menstrual upsets, 11; hemoptysis, 9; night sweats, 9; and digestive disturbances, 3.

With regard to fever, it was found to range from 99° to 99.6° in 24 cases. It was over 100° in only 9 cases, all of which were far advanced.

Night sweats were present in 9 cases, and all but 1 of these were far advanced.

Hemoptysis also occurred in 9 cases, of which 3 were moderately advanced, and 6 were far advanced.

In other words, high fever, harassing cough, persistent expectoration, hemoptysis, and night sweats are generally associated with advanced stages of disease.

It is the paucity of serious and incapacitating symptoms in the early stages which make it necessary for one to suspect tuberculosis on the least pretence. For if one is to diagnose tuberculosis in its most amenable form, one must first suspect its presence.

Physical Findings

There were no abnormal physical findings on admission in 22 (44%) cases. These represent 12 (80%) of the minimal cases, 8 (38%) of the mod-

erately advanced, and 2 (14%) of the far advanced cases.

Significant findings were found in 28 (56%). Among these findings were chest retraction, diminished movement, dullness, impaired fremitis, diminished air entry, bronchial breathing, amphoric breath sounds, and posttussic crepitations. While the latter sign is considered to be the only one pathognomonic of tuberculosis, the presence of any one, or combination of the others, will serve to focus attention on the chest.

It has been remarked that "tuberculosis is a disease which can be seen, but not heard." That is, seen on the x-ray, but not heard with the stethoscope. It will be noted from the above figures that this statement is very often true, especially when one is dealing with early disease. If one hears abnormal signs with the stethoscope, they may be due to tuberculosis; but the failure to hear abnormal signs, does not necessarily exclude its presence.

Treatment

It is not within the scope of this paper to go into the subject of treatment in detail. Suffice it to say that rest is still considered to be the most important single weapon against this disease.

However, in the past decade, active measures as a supplement to rest have become increasingly important, and are now applied to a large percentage of cases.

In this series 35 (70%) have received active treatment in one or other of its many forms. A further 2 (4%) are candidates for active measures in the near future. The remaining 13 (26%) will either not require active treatment, or else, due to the nature of their disease, interference is considred unwise at the present time.

Outcome

It is too early to speak of the final results of treatment. However, at the time of writing, eight (6 with pneumothorax) have been discharged to carry on at home. Two, both with pneumothorax, are working part-time at the sanatorium. One patient left against advice. There have been 4 deaths, all among patients in the far advanced class. The average age of those who have died was 25 years.

Diagnostic Agency

Diagnosis was made by Travelling Clinics and Surveys in 18 (36%), by static units of the Sanatorium Board (C.T.C. and Sanatoria) in 17 (34%), by private and company doctors in 11 (22%), and by the Armed Forces and D.V.A. in 4 (8%).

The value of x-ray examination in the diagnosis of pulmonary tuberculosis cannot be over-emphasized. Next to the finding of positive sputum itself, there can be no more definite evidence of the presence of this disease.

General practitioners, internists, and radiologists are finding that mass chest x-rays, far from robbing them of patients or income, have brought them more of both. For often non-tuberculous conditions which require treatment are discovered. Among such conditions are pneumonia, cancer, and heart disease. In addition, it must be reassuring for a practitioner to know that he himself is not running the risk of infection while tending the sick.

One word about streptomycin. Its discovery has not altered the need for early diagnosis. In fact one might say that the need is greater now than ever. For, in a disease like tuberculosis, the success of any drug is tied up inevitably to its administration before the patient has lost his recuperative powers and before irreversible tissue changes have occurred.

Very shortly every municipality in Manitoba will have been visited by the x-ray survey at least once. This is a notable achievement, but has taken many years to accomplish. It must now be repeated. The second tour of the province, due to the addition of new and improved equipment, will be much shorter. In this phase we will deal the tubercle bacillus a stunning blow if all hands are rallied to the effort.

I have but three suggestions to make:

1. That the augmented program of mass Surveys and Travelling Clinics be maintained at its present peak of efficiency.

2. That the physicians of the province continue to support the anti-tuberculosis effort, and that they make increased use of the diagnostic x-ray facilities that are available to them.

3. That a more intensive campaign of tuberculosis education be entered upon to coincide with a similar drive which is to be launched shortly in the United States by the National Tuberculosis Association.

In spite of all efforts thus far, the word tuberculosis still has a stigma attached to it; it is still spoken in whispered tones by many. The reason for this, of course, is ignorance and fear. Cancer was similarly regarded until recent years. The latter has now emerged into the light, thanks to an intensive educational program. We can do the same for tuberculosis. We must do it, if the maximum benefit is to be derived from our anti-tuberculosis work. In such a project the doctors of the province may well play a very important role.

In closing, may I leave you with just one thought. Unless a loss of appetite, a loss of weight, unusual weakness or fatigue, a slight fever or a cough can be reasonably explained on some other grounds, they may be due to tuberculosis. It is not enough that the patient may have had a chest plate two years ago, or that the survey may be

coming to your community within six months. Order an x-ray today! Delay of only a few weeks in the presence of active disease, especially in a young person, may gravely alter prognosis.

Remember, "Early discovery means early recovery."

SURGERY

Pre-Operative Care. One Phase of a Total Surgical Plan*

K. R. Trueman, M.D., M.Sc. (Minn.)

The surgeon of today is in a stronger position than his predecessors whose fine technical skill he has inherited. This is so since there is now available knowledge and information which has resulted from the extraordinary advances made in recent years in clinical and laboratory research. As a result, the surgeon is learning that, in order to achieve success in the care of serious conditions, he must apply more and more comprehensive measures. It is accepted that certain surgical diseases, once they are well established, affect in various ways the whole organism. Thus infection, nutritional disturbances, increased metabolism and tissue damage may produce marked physiological and biochemical disturbances. The fuller understanding of these secondary effects and the means to correct them forms the basis of safe, modern surgery. The surgeon must remain alert to their possibility and to the increased risk to the patient when they are not corrected. In order to meet these fuller problems, the surgeon must adopt a total surgical plan. (Fig. 1). Just as a nation involved in modern or total warfare must mobilize all its material and human resources, so the surgeon must make use of all the means at his disposal. No longer can emphasis be placed chiefly upon technical skill to eradicate disease and provide a successful issue while it is hoped that the patient possesses the necessary vital reserves to match the inroads of his illness and the burden of the operation. Over-concentration on the operative or mechanical phase almost to the neglect or exclusion of other important phases has been the cause of many failures or at the best, incomplete recoveries.

Every case deserves the most careful general consideration. There should be no short cuts in the history taking or physical examination or the performance of routine blood and urine analyses. It is advocated that all patients undergoing surgery of some moment receive an x-ray examination of the chest. On the public wards of our teaching hospitals in Winnipeg we freely seek and receive consultation on our patients from the medical departments in the matter of the status of their cardiac, pulmonary, and renal function. In our own group practice among private patients the same principle is followed. It is based upon the understanding that time and knowledge are limited and proper surgical ability does not always mean equal medical acumen. The result provides a more complete picture of the patient's general position and a greater familiarity with his weaknesses and provides protection for him in the ordeal he is to undergo.

In this discussion, which deals with the preparation of the patient for surgery, some of the major therapeutic measures available to reduce morbidity and mortality in a great variety of pathological states will be considered. Specifically, I wish to refer to the problems of dehydration, malnutrition, avitaminosis and anemia.

Dehydration

This condition may exist in patients who have been unable to take fluids for a few hours as well as in those who have suffered a marked loss of weight over a considerable time because of illness. It becomes a distinct certainty where, in addition to failure to take food and fluid, there are abnormal losses by vomiting, diarrhoea, a fecal fistula or excessive sweating. The clinical picture is well known. In the absence of renal disease the urine will be scanty and concentrated. Estimation of the blood or constituents of the plasma may be misleading in moderate to severe dehydration because of falsely high reading due to concentration. It has been demonstrated by Maddock and Coller on the basis of human experiment that when an individual is dehydrated clinically he is lacking fluid equivalent to six per cent of his body weight. Figure 2.

When the intake of fluids orally is partly or wholly impossible, intravenous administration is usually employed. For those patients depending upon this manner for their fluids, a minimum of 3000 cc. daily is required. This permits a normal loss of 1000 to 1500 cc. by kidney excretion which is necessary for the elimination of waste products, while another 1000 to 2000 cc. are lost ordinarily by sweating and respiration. Should extraordinary losses occur in methods for decompressing the gastro-intestinal tract or external fistulae, the replacement of these amounts as accurately as possible is indicated. Thus a continuous gastric suction will remove 1000 cc. or more of secretion in 24 hours. Estimation of the amounts lost may be determined by a careful collection of such

*Division of Surgery, Winnipeg Clinic, Winnipeg, Manitoba. Read before the convention meetings of the Saskatchewan, Alberta, and British Columbia Medical Associations during September, 1947, and the Winnipeg Medical Society on October 17, 1947.

fluids or by the daily accurate weighing of the patient as advocated by Wangensteen.

One of the chief problems in intravenous fluid therapy involves the quantity of sodium chloride to be given. There has been a distinct tendency for the routine use of saline in all parenteral administration of fluid without regard to whether sodium chloride is needed or not. There are serious drawbacks to such a practice. Thus it is known that the body's requirements for salt are not more than 7 gms. daily. Salt given in excess of this amount cannot be excreted by the kidneys, and there follows a diminution in renal function and a retention of waste products as evidenced by the reduced urine output and an elevated blood urea nitrogen. More subtle may be the edema in the tissues, including the lungs, due to chloride retention, which will delay wound healing and cause obstruction at gastro-intestinal anastomoses. Therefore, apart from providing salt for normal requirements and what may be lost through suction, etc., great care must be employed to avoid the too free use of chloride over lengthy periods in the preoperative phases. Rather it is better to revise the salt requirements downward than to give in excess.

In order to overcome dehydration and yet have satisfactory renal secretion, a solution of five per cent glucose in distilled water can be used over and above what is given as saline. The glucose not only provides some osmotic effect, but it is a source of nutrition. However, as the body can metabolize only 10-12 grams per hour, it must be given slowly or glycosuria and diuresis develop, thereby reducing the number of calories available, and the undue loss of water may have an ill effect upon the already dehydrated patient. Examples of this are seen daily in urinalysis showing sugar following intravenous administration. In addition, the slow administration offsets the very definite hazard of overloading a weakened cardio-vascular system.

Malnutrition

In recent years the problem of malnutrition and its correction in the surgical patient has been brought increasingly to the attention of the surgeon. It involves chiefly a deficiency of proteins in tissues due to a relative or absolute reduction of food intake over a relatively long time.

Proteins of the diet are reduced in digestion by pancreatic trypsin and other enzymes, and are generally absorbed as amino acids. In this form they are available for the synthesis of body protein, for glycogen, for storage or combustion, by deaminization in the liver, and finally for synthesis into other essential nitrogenous compounds. When the subject is fasting, the body's supply of glycogen and fat is converted to supply energy. As they are consumed, protein is converted into glycogen to meet the body's needs. This conversion or deaminization is a liver function and one in which the liver is sacrificed as well as other tissues, yielding as it does a large part of its amino acids. Where measures are being employed to treat protein deficiency, an important principle to remember is that sufficient additional calories in the form of glucose, or fat where food is taken, must accompany protein therapy to meet energy requirements. Otherwise part or all of the protein administered will be converted to glycogen for energy, and very little will be available for the manufacture of cellular protoplasm or the constituents of body fluids.

In malnutrition or protein deficiency, the following effects take place.

1. Wasting. Because of lack of proteins (and lack of calories), gross or subclinical wasting occurs. This is revealed by progressive weight loss in spite of adequate hydration. Muscular tissue exhibits this, but the liver yields 40 per cent of its protein as compared to an 8 per cent loss by muscular tissue.

2. Oedema. Should this occur without obvious cardiac or renal disease, the question of dietary origin must be raised. The oedema of starvation may be considered as due to hypoproteinemia because of the relation of osmotic pressure to hydrostatic pressure. The oedema in wounds and gastro-intestinal stomata may be due to protein deficiency as well as to excess of chlorides.

3. Anaemia. As haemoglobin is composed of the iron containing pigment, haemo, and a histone protein, globin, adequate supplies of protein are necessary for proper blood formation.

It has been shown by Whipple that haemoglobin may be deprived of its globin in protein depleted states.

4. Antibody Formation. The work of Cannon and others reveals that proteins are necessary for antibody formation and it is the serum globulins which contain the antibodies. Although the total requirements for antibody production must be small, nevertheless, the competition in the poorly nourished subject is intense. Therefore protein deficiency may be a factor in reduced antibody formation.

5. Susceptibility to Liver Damage. It is known that the liver gives up large amounts of its protein in fasting states and it has been conclusively shown that proteins are necessary to protect the liver from damage. Hence the liver becomes increasingly susceptible in protein deficiency.

6. General Effects. These may be subtle and general. One of the most important of these is anorexia, which further influences an inadequate protein intake. Other effects include mental irritability and lassitude and unwillingness to undertake muscular activity as may be noted in the convalescent phase of any illness.

7. Failure of Wound Healing. The problem of delay in healing of decubitus ulcer, burns, and wounds and disruption of wounds is closely related to protein deficiency. No doubt such a deficiency adds to the oedema at the sites of stomata and incisions and is partly responsible for failure of healing. Excess chlorides and a deficiency of Vitamin C are further important factors in healing.

8. Hypoproteinemia. Plasma proteins have assumed increasing importance in clinical practice partly because of their accessibility and ease of estimation. However, in diagnosis the reduction of the value of the plasma proteins is a late manifestation of general protein deficiency since their relationship to body proteins is not constant under all conditions. Plasma proteins in early deficiency are maintained at the expense of other tissues. Conversely, in the recovery phase the plasma proteins return towards normal on a high protein intake before tissue requirements are met.

Diagnosis of Protein Deficiency

Diagnosis of this condition obviously is most scientifically done by accurate nitrogen balance estimations. This is, however, tedious and time-consuming, and is best left to the field of investigation. Clinically, the diagnosis is based upon observation and prediction. The situations in which protein may be lacking are known, and so in a given case the deficiency can be predicted at least qualitatively. The estimation of weight and tissue loss is an integral part of clinical sense and is a valuable guide to therapy. When means are available, the repeated estimation of the various plasma protein factors is important especially when dehydration is being corrected, since the readings will be falsely high due to concentration and will vary downwards as fluids are restored. Attention should be directed to the value particularly of albumen.

The Occurrence of Protein Deficient States

In gastro-intestinal disorders such as carcinoma of the stomach or stenosing peptic ulcers in which anorexia and vomiting may be present, there is almost invariably some degree of protein deficiency.

In thyrotoxicosis there is gross wasting which is associated with liver damage and requires diets of 5-6000 calories, with a high protein element for control. It is well to mention the work of Co Tui in the treatment of peptic ulcer with high protein diet. The rationale of this method does not depend upon control of gastric acidity, but it is of value because patients with chronic ulcer often have a long history of a protein deficient diet. The Sippy diet is low in protein, and in some other diets meat is prohibited. This, together with loss of appetite, vomiting, and perhaps haemorrhage, should easily deplete the body proteins. Thus it is quite reasonable that the high protein Meulengracht diet should be successful in the therapy of ulcers associated with bleeding. Certainly high protein diets have an important place in ulcer treatment.

In diseases associated with rapid passage through the intestinal tract, as in ulcerative or amebic colitis, there is often impaired digestion and absorption of protein. In addition, there is protein loss from the ulcerating lesions of the mucosa. It is felt that the greatest contribution to the medical care of sufferers from these diseases is the availability of a satisfactory diet to maintain tissue protein reserve. In febrile states, as in peritonitis, or appendiceal or subphrenic abscess, or in disuse atrophy associated with a severe fracture, burns and other open lesions, the so-called "toxic destruction" of protein occurs. In such conditions tissue protein is rapidly consumed, and this loss is estimated as high as one per cent of body protein per day.

Protein Nutrition of Hospital Patients

As our interest in this problem developed, an inquiry was made into the dietary standards of the Winnipeg General Hospital. Theoretically, the ward diet was a satisfactory one. In the ordinary ward diet, an attempt is made to provide 70 grams of protein per day to the patient. It was a matter of concern, however, to observe the very large amounts of food left on the trays by patients, especially of meat, milk, bread and butter. On inquiry, many reasonable explanations were forthcoming, but no satisfactory solution. In patients preparing for surgery or convalescing from operation or serious medical illnesses, even if the whole of the diet were taken it did not provide the extra grams of protein required not only to maintain tissue but to repair the ravages of trauma, fever and fasting. The provision of a high protein diet containing 100 grams or more of protein was more useful when the patient would take it. Certain factors do prevent a proportion of patients from handling their diet. A more readily assimilated form of nourishment was needed to supplement ordinary oral diets. For years jejunostomy diets, high in calories and protein, had been used as drip feedings in special cases. More recently, we have used the Casec drink but find it seems to satisfy the patient's appetite so that his regular diet is only partially consumed. The reason for this, it is felt, is that Casec drink contains a very large proportion of fat (104 grams in one quart) which would cause it to remain in the stomach for a long time. We make use, therefore, of a formula suggested by Doctor Jessie McGeachy of Winnipeg. (Fig. 3). This formula contains less fat but ample protein. The patients tolerate it well, and it does not appear to affect the appetite unduly. It is suggested, however, that a glass be given soon after a meal in order to allow the stomach to empty, and

at bedtime. For ulcer patients it can be used for interval feedings.

Such a preparation supplemented with further protein, fat, and glucose to which are added vitamins and salt, can be used for tube feedings. The use of continuous drip feedings by a gastric catheter fitted with a Murphy drip, is of great value in feeding ill patients whose anorexia prevents the ordinary use of food. Post-operatively, it may be employed when it is unwise to introduce even moderate amounts of material into the stomach, and its administration can be controlled to meet the patient's tolerance.

Finally, certain cases undergoing preparation for surgery will not tolerate oral diets of any kind. Some of these patients may be suffering from extreme protein deficiency. To correct this state with large quantities of plasma or blood is expensive and requires many donors. Thus 500 cc. of plasma representing two donors contains only 30 grams of protein, or what is found in three glasses of milk. Amino acids are now available for intravenous administration. Some of these preparations contain 50-60 grams of amino acids in a litre of distilled water, and at least one (Amigen) contains 50 grams of dextrose. This addition makes therapy easier, since a high caloric intake is assured to spare amino acids for protein synthesis. Two or three litres of this amino acid-carbohydrate combination may be used daily provided it is given slowly. In this manner, sufficient amino acids to meet the average maintenance requirements of one gram of protein per kilogram of body weight per day are provided, plus an additional amount to care for existing protein deficiencies, while fluids are maintained. Sufficient sodium chloride is not included in the amino acid preparation to equal body needs. Therefore, it must be provided by separate administration in whatever quantities are indicated.

Where the preparation is lengthy and requires two to three weeks, and if the condition is critical, the addition of whole blood to provide red blood cells once or twice a week is advisable. Much time and consideration must be given the preparation in the serious case where surgery can be delayed. Patience and forbearance will be rewarded by a smoother post-operative course if a vigorous nutritional programme is pursued.

Avitaminosis

This condition will exist in malnutrition or in cases treated for lengthy periods parenterally. When present, it is usually a multiple vitamin deficiency. It has also been shown recently that vitamin requirements are increased in the presence of fever, trauma and elevated metabolism. The function of the liver is seriously impaired if thiamine chloride (Bl) is not available. This possibility can be averted by administering the vitamin along with other B factors orally or parenterally. Ten to fifteen milligrams of thiamine chloride daily is indicated. Vitamin C, which is so important in wound healing and in maintaining capillary impermeability, should be provided in doses of over 300 milligrams. Vitamin K for prothrombin formation should never be overlooked in gastrointestinal and biliary tract surgery. It has perhaps not been a common experience, but we have had several cases of colostomy closure followed by severe bleeding. Prothrombin estimation indicated avitaminosis K, because we had failed to remember the vitamin is absorbed from the diet in the colon, which in these instances had been defunctionalized for long periods.

Anemia

This state may occur as the result of prolonged fasting due to disease or loss of blood due to trauma or a major operation. In malnutrition if time permits, the anemic state will be corrected as the deficiencies are met with proper diet supplemented by iron. If surgery is contemplated, the condition will be more speedily treated if 500 cc. of whole blood is administered every 2-3 days, until the blood is at a suitable level. With a hemoglobin below 75-80 per cent, a serious operative procedure should not be undertaken unless the anemia cannot be corrected or the operation cannot be delayed. It is now, or should be, generally accepted that increasing success in major operations depends upon the prevention of shock during and after the operation. Nowhere in modern medicine can the principle of teamwork be evidenced as well as in the operating theatre where a modern anaesthetist is present. His training, as well as his new methods of anaesthesia, permit him to remove much responsibility from the surgeon. The possibility of shock is usually met by the administration of fluids which begins with the anaesthetic. The changes in the patient's condition, because they are anticipated, are rarely permitted to continue without early means taken to correct them. Blood should always be available, and if a blood bank is maintained, it should be used freely if the patient's condition warrants it. In the performance of extensive resections in gastrointestinal or biliary tract disease, or dissections elsewhere, at least one or two pints of blood should be in the theatre and the transfusion should continue after the operation if the patient's condition appears unsatisfactory. It has been shown that very substantial losses of blood may occur without recognition during even moderate procedures, and a definite anaemic state is present on the return of the patient to the ward.

The use of blood as a supportive measure has become a "must" in major surgery. Its use has protected many during lengthy and risky undertakings. The incidence of shock has been prac-

tically eliminated by the freer use of blood or plasma during and after major surgical procedures. There can be little doubt that the experience of military surgeons will demand that blood be available for their civilian patients, and that measures will be sought in even the smaller rural hospitals to provide for such needs. It might be almost reasonable to argue that the major operations should not be performed where facilities for providing transfusions are not found.

In conclusion, the great advances in surgery over the past twenty-five years and the progress into newer fields is attributable to a very large degree to better preparation of the seriously ill patient, based upon a more complete understanding of the nutritional, biochemical, and physiological upsets which attend major surgical lesions. Fortunately, the means are becoming increasingly available to correct them.

Fig. 1 A Total Surgical Plan

1. Investigation Phase.
2. Pre-operative Phase.
3. Operative Phase.
4. Immediate Post-operative Phase.
5. Rehabilitation Phase.
6. Follow-up Phase.

Fig. 2

Body Weight	6 per cent
10 Kg., or 22 lbs.	600 cc.
20 Kg,, or 44 lbs.	1200 cc.
60 Kg., or 132 lbs.	3600 cc.
80 Kg., or 176 lbs.	4800 cc.

Fig. 3 Egg Milk Whip

Ingredients	Analysis P.	F.	CHO.
40 oz. milk	40	48	60
60 gms. skim milk	20	2	30
2 eggs	12	12	....
60 gms. sugar	....	....	60
salt vanilla			
36 gms. cocoa	4	10	12
Totals:			
	P.	76 gms.	
Total calories 1600	F.	72 gms.	
	CHO.	162 gms.	

Fig. 4

Hi-Protein Hi-Calorie Tube Feeding

Contents	Amt.	Prot.	Fat	CHO.
Skim Milk Pwdr.	100 gm.	35	....	50
Casec	60 gm.	51	....	....
Eggs	4	24	24	....
Brewers Yeast	20 gm.	10	....	7
Orange Juice	3 oz.	....	....	18
Karo	8 oz.	....	....	240
NaCl	5 gm.	....	....	....
Evap. Milk	14 oz.	28	28	36
Creamilk	40 oz.	40	120	40
(Cals. 3864)	2 qts.	188	172	391

Adrenal Cortical Tumors

Leonard Greenberg, M.D.

There is no group of tumors more fascinating than those of the adrenal cortex, producing as they do, such bizarre and widespread clinical manifestations. In recent years much has been added to our knowledge of adrenal cortical hormones. Now we can understand more fully the syndromes of hyperadrenalism.

The Physiology of the Adrenal Cortex

Among the physiologic activities affected by the adrenal cortex are the metabolism of salt and water, the electrolytic balance, the permeability of capillaries, the metabolism of carbohydrate, fat and protein, the renal function and the capacity of muscle response. These activities were at one time believed to be under the influence of a single vital cortical hormone—"cortin." It has since been established that no one compound can be regarded as the vital or essential hormone which can produce all the physiologic effects of the gland. To date twenty-eight different steroids have been isolated from the active cortical extract, some having a definite hormonal action. One of these steroids, desoxycorticosterone, is most effective in the regulation of salt and water metabolism, electrolytic balance and capillary permeability, but has no effect on carbohydrate metabolism. Corticosterone and its derivatives with an oxygen atom at the eleventh carbon atom, exert their effect on gluconeogenesis and muscle efficiency. Dehydro-iso-androsterone has the property of male sex hormone. The female hormones, estrone and progesterone, have also been described as being secreted by normal adrenals.

Clinical Classification of Cortical Tumors (Cahill, Melicow and Darby)

1. No recognizable hormonal changes. The patient may complain of an abdominal tumor or of symptoms of pressure from such a tumor.

2. Changes due to excess androgens—the so-called Adrenogenital Syndrome. (a) In female child toward adult masculinity. (b) In female adult toward masculinity. (c) In male child toward adult masculinity.

In this group there is intense masculinization with precocious development of genital organs and of body hair having a masculine distribution, abnormal somatic growth and a well-developed musculature. Amenorrhea is the rule in the female and the growth of the breasts is minimal.

3. Changes due to excess estrogens: (a) In adult male toward femininity. Here one sees atrophy of the testes, a loss of body hair and an abnormal growth of the breasts.

4. Changes due to excess androgens and other steroids: (a) Cushing's Syndrome with associated sexual changes (mostly in females).

5. Changes due to excess of other steroids related to metabolism: (a) Cushing's Syndrome without sexual changes (in male and female).

In Cushing's Syndrome the masculinization is less intense than in the adrenogenital syndrome and may even be absent. The syndrome is characterized by adiposity which is often confined to the face, neck and trunk and may be painful, polycythemia with plethora, hirsutism, vascular hypertension, purplish cutaneous striae, ecchymoses, osteoporosis, diabetes mellitus, and usually amenorrhea. Simple adrenal hyperplasia, thymic tumors with adrenal hyperplasia, and basophilic adenoma of the pituitary with or without adrenal hyperplasia may also produce this syndrome.

Pathology

No attempt will be made to discuss in detail the pathology of adrenal cortical tumors. Suffice it to say that they are either adenomas or carcinomas, the former being more frequent in younger adults and the latter in older ones, and that even the adenomas are potentially malignant. Metastases have been described most frequently in the liver and lungs, and occasionally in the skull, opposite adrenal, peritoneum, brain, aortic, bronchial and mesenteric lymph nodes, pancreas, heart, mediastinum, ribs, spleen, intestines and ovaries.

Diagnosis

The presence of some of the signs and symptoms already mentioned, should make one suspicious of the possibility of an adrenal cortical tumor, although pituitary basophilism and ovarian tumors (arrhenoblastoma and very, very rarely granulosa-cell tumor) must also receive due consideration. Occasionally one may be fortunate enough to feel an abdominal mass in the region of the kidney. Roentgenologic examination may prove invaluable, the tumor being demonstrated by its displacement of the kidney on a flat plate or pyelogram, by its visualization after the perirenal injection of air, or by the method of Reynalds dos Santos in which the arterial blood supply of the tumor is visualized after the injection of an opaque media into the aorta via the lumbar route. Urinary hormonal studies have also been used with some success, the presence of large amounts of female sex hormones with tests negative to pregnancy and with no increase in the pituitary sex hormone pointing to adrenal cortical change. In all cases where doubt exists, surgical exploration is justified, rather than permitting an operable carcinoma of the adrenal cortex progress to death with a diagnosis of pituitary basophilism.

Post-Operative Acute Adrenal Insufficiency

No discussion of adrenal cortical tumors would be complete without mention of the syndrome of post-operative acute adrenal insufficiency. In many cases of hyperfunctioning adrenal cortical tumors the opposite adrenal undergoes an atrophy of disuse, and when such a tumor is removed the patient often passes into a state of shock closely resembling the crisis of Addison's Disease. The most important factor in surgical therapy is the anticipation, prevention and control of this post-operative cortical insufficiency. This involves the pre and post-operative administration of potent cortical hormone, or the synthetic desoxycorticosterone, together with the oral and parenteral use of adequate amounts of sodium chloride and sodium citrate. A diet low in potassium for a time before and after operation is also advisable.

Case Report

Mrs. J. B., age 42 years, was admitted to St. Bonface Hospital on April 2, 1947. Her entrance complaints were shortness of breath and irritability of six months duration, and weakness, fatiguability and intolerance to heat of three months duration. Her previous history and family history were essentially negative. She had given birth to two normal children but her last pregnancy in 1938 had ended in abortion before the third month. Functional enquiry brought forth the following significant data — an increased growth of hair on the face and body, change of voice to lower pitch, fullness in the head with occasional dizziness, polydypsia with frequency and nocturia, amenorrhea since 1944 (which patient regarded as her menopause), and loss of weight (143 lbs. to 128 lbs.). All of these symptoms, with the exception of amenorrhea, had developed within a period of six months prior to admission to hospital.

Physical examination revealed a middle-aged woman with marked plethora of the face and neck, an acneform rash on the face and back, a moderate growth of hair on the upper lip, cheeks and chin, increased growth of hair on the trunk and extremities and a masculine distribution of pubic hair. The thyroid gland was moderately enlarged, smooth and firm. The breasts were of moderate size and appeared normal. The heart was slightly enlarged with occasional premature contraction, and the blood pressure was 180/130. The abdomen had a rounded contour and the liver edge was palpable three fingers below the costal margin. Extending from beneath the left costal margin was a notched mass, which, in spite of repeated examination, felt so much like an enlarged spleen that it was never considered to be otherwise. The external genitalia and pelvic organs were essentially normal.

Laboratory and X-ray Findings

Urinalysis showed a trace of albumen but no other abnormality. Hemoglobin was 127%, R.B.C. 6.07 million, color index 1.05, leucocytes 12,100 with a normal differential count, and sedimentation rate (Westergren) 24 mm. in 1 hour. Blood urea

nitrogen was 8 mgm., and chlorides 255 mgm. (420 mgm. expressed as Na Cl). A glucose tolerance test showed a fasting blood sugar of 125 mgm., rising to 320 mgm. in one hour and falling to 230 mgm. in two hours. The basal metabolic rate was plus 22%.

Radiological examination of the chest showed a small irregular opacity in the left central lung field and another in the right lower lung field which were considered to be metastases, infarcts or inflammatory lesions. A flat plate of the abdomen showed a small area of calcification above the left kidney, another in the region of the uterus, and several opaque biliary calculi. X-rays of the bones showed no evidence of osteoporosis.

A diagnosis of Cushing's Syndrome probably due to carcinoma of the adrenal cortex was made and surgical exploration advised. A diet low in potassium and 12 cc. of Eschatin in divided doses were given for three days pre-operatively. Because of the polycythemia, a phlebotomy with removal of 500 ccs of blood was done the day before operation.

The abdomen was entered through a long left paramedian incision. What was thought to be spleen on physical examination was found to be a carcinoma of the left adrenal cortex which had reached the size of a large grapefruit. Four small nodule of secondary carcinoma were found in the liver. The case was considered hopeless but it was felt that removal of the primary lesion might result in some recession of the secondaries and might possibly affect favorably the metabolic disturbances. The tumor was extremely vascular and it was necessary to ligate the renal pedicle and remove the kidney also in order to control the bleeding. During the operative procedure 1000 ccs of normal saline, 10 ccs of eschatin and 1 cc of adrenaline were given, but the patient passed into a state of shock and died as she was leaving the operating room.

Pathological examination confirmed the diagnosis of primary carcinoma of the adrenal cortex and post-mortem examination revealed secondary nodules in the lungs as well as the liver. The right adrenal gland was markedly atrophic.

Summary

Some of the newer concepts of adrenal cortical physiology are briefly presented. A clinical classification of adrenal cortical tumors is given, mentioning signs, symptoms and diagnostic aids. The importance of the syndrome of post-operative acute adrenal insufficiency is stressed. A case of Cushing's Syndrome resulting from a primary carcinoma of the adrenal cortex is outlined.

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Case Report

Perforated Duodenal Ulcer In An Octogenarian

Drs. Reginald W. Whetter, Murray R. Hodgson and W. B. Janes

A retired farmer of 80 had suffered from crampy epigastric pains for three weeks prior to May 29th. About 5.30 that evening he took a large dose of a proprietary medicine and half an hour later was seized with sudden, intense pain in his belly. Because the pain persisted he called us six hours later and, as he lived 22 miles away, he was not seen until after midnight. He was found to be in shock and his abdomen was of board-like rigidity. Perforation of an ulcer was diagnosed and the seriousness of the condition was explained to him, but he refused to go to hospital. He was given an injection of morphine and atropine. This gave him relief for some hours but when the pain returned it was so intense that he consented to go to hospital. By that time his general condition was so grave that recovery seemed impossible. At operation a perforated ulcer was found on the anterior wall of the duodenum about half an inch from the pylorus. It was easily sutured through a transverse incision. Supportive measures were given but he died some hours later.

In spite of his age the reasons for the patient's death were his refusal to get advice in the early stages of his illness and his later refusal to be hospitalized.

Acute Orchitis

In the recent summer epidemic a number of adults developed Orchitis. I am most anxious to have the blood from these patients tested for antibodies neutralizing mumps virus. Will any doctor having had such a patient please send me a Kiedel tube of blood accompanied by a brief clinical summary. It will take two weeks to get the tests done.

Bruce Chown, M.D.,
Children's Hospital.

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ANAESTHESIOLOGY

Edited by D. G. Revell, M.D., Anaesthetist, Children's Hospital, Winnipeg
and Fred A. Walton, M.D., Anaesthetist, Winnipeg General Hospital

Pre-Operative Care — Anaesthetist's Comments

(Part of a Symposium on Pre-operative Care, Winnipeg Medical Society, Oct. 17)

With the development of the art of surgery, which has taken rapid strides since the art of anaesthesia became a science, the anaesthetist has become of increasing importance on the surgical team. Operations previously considered extremely hazardous have become relatively commonplace and safe with the development of new anaesthetic agents and techniques. The surgeon has come to rely more and more on the anaesthetist, not only in the care of the patient during operation, but in the adequate preparation of the patient for his ordeal and in managing the immediate post-operative course.

Before embarking on a mission, the skipper and first mate of a submarine must be mutually confident in the experience, knowledge, judgment and abilities of one another and satisfied with the working condition of their ship's equipment. Everything from the hull to the motors, batteries, air-treatment system, depth control apparatus and navigation instruments must be in proper working order before putting to sea. The crew must be able to sink their craft to the safety of quiet depths during storms as well as detect and steer clear of treacherous reefs and shoals. So, with the surgical patient, the success of the operation depends considerably on their thorough preparation before leaving the ward, the careful management during the cruise through the dangerous waters of the operating room and the safe return to port. Even after being berthed there are duties necessary to keep the craft afloat and serviceable. Fresh supplies must be taken aboard, fuel and water tanks refilled and the bilge-pumps kept working. Even relatively common and minor operations must not be undertaken lightly and without regard to the possibilities of unforeseen complications and accidents. There is an unfortunate but real tendency for those who regularly work in the operating room to become off hand, familiar and even contemptuous of the possible dangers which lurk there for the unsuspecting and all trusting patient. His absolute resignation to our care and judgment is a trust we must always take with seriousness and sincerity. It is essential that we know as much as possible about the functional capacities and weaknesses of the complex, inter-related and inter-dependent so-called systems which make up the living person, the patient. It is sometimes forgotten that we are dealing, not with senseless vegetable life but with human persons like ourselves who have ideas, senses, personalities and a desire to live. The patient has also a natural dislike for pain, unpleasantness, unnecessary delay and insincerity. We must therefore know our patient, especially his physical condition and everything about his past illness and reactions that will enable us to provide him with the safest and least unpleasant care while he undergoes what to him is very likely one of the most profound experiences of his life. One does well to frequently imagine oneself in the patient's place in order to keep the view-point of the patient in mind. Those of you who have undergone surgical procedures and anaesthesia will appreciate this.

The pre-operative, or pre-anaesthetic, contact with the patient should begin as soon as possible after the surgical intervention has been decided upon. In these days of bed shortages, full slates and waiting lists the patient's time of admittance to hospital tends to be rather close to the arranged time of operation. We should not accept this situation as a necessary evil simply because it is to the disadvantage mostly of the patient. The intern and nursing staff do not have adequate opportunity to give of their best or derive the optimum of training experience from such hasty preparation as is necessary under these conditions. Under the present system, in one of our larger hospitals, of assigning anaesthetic staff members to cases, on the morning of operation, there is little opportunity for the proper study of the patient. The first contact is all too often made in the operating room during the bustle of preparation and where the scanty history may or may not be available for quick perusal. It is unfair and unreliable to question the patient under these circumstances regarding his former experiences or reactions, or his idiosyncracies or feelings regarding the proposed form of anaesthesia. The one who suffers as a result of this is naturally the patient.

Now that group practice is coming to the fore an increasing amount of the clinical and laboratory investigation is being done before the patient is even booked for admittance to hospital. Summaries of these investigations are very seldom available to the hospital staff in time to be of any value in assessing the risk and determining the proper pre-operative care. The ideal arrangement, of course, would be to have the anaesthetist associated with the clinic, where he could see the patient as soon as operation has been decided

upon, and assume his responsible place on the surgical team at the beginning of the game instead of at the end of the first quarter. He would be in a position to make suggestions regarding the earlier pre-operative management of the patient and to more considerately assess the risk and plan the procedure before the patient is even admitted to hospital. The patient's natural fears and misapprehensions may be dispelled at an early time by simple explanation and assurance. Many people like to know what kind of anaesthetic they are likely going to be given and who is going to administer it as well as how they will find themselves after the operation is over. By this early participation in the preparation of the patient the anaesthetist becomes a physician-anaesthetist and is not merely a technician who works only in the operating room trying to adapt the patient to his favorite technique rather than planning and suiting the procedure to the peculiar needs of each patient. The confidence established thus early in the case goes a long way toward smoothing the whole hospital experience of the surgical patient. The anaesthetist would also be in a better position for post-operative follow-up, in which he is rightly interested. There are economic aspects to this "ideal" which can not be gone into here, but the advantages of such an arrangement to all concerned are worthy of our attention.

In an emergency operation the anaesthetist is no less the professional colleague and team-mate of the surgeon than when the operation is elective. Indeed his special training and abilities may be the factors which decide the outcome of the emergency operation. The anaesthetist appreciates being contacted by the surgeon himself, who alone is able to give an accurate picture of the situation. The patient is the one who benefits most from this early commencement of team-work as plans can be briefly discussed and suggestions made concerning the nature of the premedication and other preparations. The anaesthetist thus given an opportunity to plan his procedure arrives forearmed and able to commence his task without delay. The anaesthetist "on call" for emergency operations should no more be summoned to the operating room by a nurse than, say, the cardiologist be called by a ward nurse to see a patient in consultation. The anaesthetist can give better service if he is regarded and treated as a professional colleague, and not simply called, as might be an operating-room attendant, and told that "Doctor Brown is going to do an emergency craniotomy in half and hour." If the surgeon is unable to speak to the anaesthetist he should delegate the resident or senior intern on the case to make the contact. The fact that it has formerly been the custom to have the nurse summon the anaesthetist to an emergency does not make it a professionally correct arrangement.

Time does not permit my going into the details of pre-anaesthetic considerations and medication, but I trust that it is understood that the anaesthetist must acquaint himself with the patient and all the factors involved in properly assessing the risk and planning the procedure. Essentially he is interested in the functional capacity of the cardio-vascular system, including the internal medium of oxygen transport, the blood. A great deal may be learned about this by enquiry into the subjective aspect, perhaps more than can be ascertained by percussing out and listening to the heart and examining the conjunctiva or buccal mucosa. The respiratory system, which is to be regarded as the face of contact of the blood with the atmosphere, should be checked from lips to basal alveoli, and any abnormalities or interferences with its function taken into account in determining the management of the anaesthetic. The central nervous system and the mental attitude of the patient must also be looked into with enquiry being perhaps the main approach. The state of hydration and nutrition, the metabolic activity, the renal function, the physique and the weight are also factors of importance in selecting the anaesthetic technique. Knowing the approximate weight of the patient is of especial importance in children, whose weights are difficult to guess, to permit accurate and safe calculation of dosages of such drugs as pentothal or avertin to be given by rectum or curare given intravenously or intramuscularly. The history of previous anaesthetic experiences and reactions to drugs must be enquired into though this is less frequently applicable in children. The availability of blood for use in the operating room must be checked into where the patient's condition or the nature of the operation make transfusion essential to the patient's safety.

Now that we have at our disposal such a variety of anaesthetic agents and techniques premedication must be determined not only by age, weight and other factors inherent in the patient, but also by the contemplated procedure in the operating room. In fact pre-operative or pre-anaesthetic medication with depressant drugs must be considered as commencing at hora somni the night before the morning of operation. Some drugs prescribed to promote sleep have a hang-over effect which may modify the reaction to drugs given immediately prior to operation. Since the anaesthetist is responsible for the choice of anaesthetic procedure, and since the pre-operative medication is in reality part of the anaesthetic, it is the responsibility of the anaesthetist to order all pre-operative depressants. This can not be properly done in many cases without investigating the many factors which determine choice and dosage. Where the anaesthetist himself is unable to see the patient his trained intern or resident may do this for him

after the pertinent factors have been looked into. Few surgeons are able to appreciate the importance of the adequacy of premedication on the course of the anaesthetic, tending on the whole to prescribe too little, and often not the best agents. In fact most surgeons prefer to leave the ordering of both pre- and post-operative sedatives to the anaesthetist as their proper selection and dosage are so important in the prevention of undesirable situations or even complications.

To keep pace with the times one must continually read the current literature and whenever one has become convinced of the advantages of another's technique in the patient's or the surgeon's interests such a new technique should be considered and if possible adopted. Accordingly, for some time now, I have found it a definite improvement over former procedures to use morphine and scopolamine in the premedication of infants and children. I have attempted to hit a happy mean in the dosages suggested by several different writers, leaning always on the safe side. The results so far have been most gratifying to all concerned, safely smoothing even the recovery period. Since noticeably less general anaesthetic agent is necessary during anaesthesia the recovery is quicker and attended by very little general disturbance. The dosages range from one five-hundredth grain of morphine together with one six-hundredth grain of scopolamine for the tiniest infants to almost adult dosages for the well grown children. Accuracy of dosage is made possible by the use of pharmacy-prepared dilute solutions put up in rubber-capped bottles with the usual chlorbutanol preservative. Besides the moderate pre-anaesthetic hypo., where indicated, the child is given two-point-five per cent pentothal sodium solution by rectum in weight-based dosage to produce light basal narcosis. This procedure spares the apprehensive child, perhaps conditioned against anaesthesia by former unhappy experience, the necessity of arriving in the operating room upset and in a resistant mood. It obviates the scenes which tend to un-nerve even the adults present, and the post-anaesthetic recovery period is somewhat smoothed and very little prolonged.

The purposes of adequate pre-medication are; to quieten and to a degree depress the central nervous system, allaying the natural fears of the patient, to smoothen and shorten the most hazardous period of the anaesthetic, the induction, to lower the metabolic rate, thus reducing the amount of agent or agents necessary to produce the desired analgesia or depth of narcosis, and to protect the nervous system from adverse reflex responses by inhibiting vagus activity. The selection of the agents used in pre-medication is largely a matter of personal choice and experience, but the dosages are influenced by many factors such as; age, physique, state of nutrition, hydration and oxygenation, the metabolic activity as determined by body temperature or laboratory test, the presence of such diseases as diabetes, impaired liver or renal function, the alcohol-using habits of the patient, the presence of pain and drug sensitivity or idiosyncracy as well as the contemplated anaesthetic technique. Over-pre-medication is undesirable, especially where oxygenation is or is likely to become embarrassed. In Winnipeg we do not subscribe to the heavier multiple-dose premedication used in some of the Eastern and Southern clinics.

Now a few words regarding pre-operative training. A great deal of our pre-operative care is aimed at decreasing post-operative complications, especially during the immediate post-operative period. Take the group of operations involving the upper abdomen, thoracic and trans-thoracic cases and kidney operations where the position of the incision interferes with full respiratory movements. Many patients without chronic respiratory infection do not know how to cough effectively. Such patients may benefit greatly by a chance to practice this semi-voluntary reflex so that after operation they are better able to keep the lower respiratory tract cleared of secretions which otherwise might set the stage for atelectasis. The importance of deep breathing and early active moving about in the bed should be impressed upon them before and not after the operation when they are often so miserable and afraid of tearing their incisions open. Also leg exercises should be explained and their importance in maintaining muscle and vascular tonus to decrease the likelihood of sluggish venous circulation and thrombophlebitis. The low incidence of post-operative complications seen in soldiers wounded in the field was partly attributed to their being in the pink of condition at the time they were hit. Of course they were a select group and physically fit. However, it implies that surgical patients will do better if they maintain their muscular and vascular tonus right up to the time of operation. If operation is not scheduled till late in the morning it is advisable for well patients to be up and about till the time of their pre-anaesthetic hypo. This has also a tendency to minimize the disturbance the patient will expect from his operation and lead to an earlier return to normal activity.

One aspect of pre-operative care which has been so far seriously neglected is giving the patient an opportunity to learn how to use the bed-pan and/or urinal **before** operation. I refer to the use of the urinal while the patient is recumbent, or the position he will be obliged to remain in for some little time after operation. Civilization and parental training have developed in humans a control over

the time and place of emptying the bladder. This reflex which prevents the bladder from emptying while an individual is lying down, asleep or awake, permits the use of the more comfortable inner-spring mattress with safety. It is not easy to unlearn this control as most of you who have had abdominal operations will know, especially if the ability to void in the horizontal position has never been acquired. Once acquired it is relatively easy. However, when one has a painful incision and one's bladder has become overfull in consequence of having had considerable intravenous fluids in the operating room or on return to the ward, and the sensation of a full bladder has been dulled by sedatives, it requires considerable simultaneous straining and relaxation to initiate the reflex of voiding. The ill effects of overdistention of the urinary bladder are well known, and the necessity for repeated catheterization is not without danger. I am sure that the need for post-operative catheterization could be very considerably reduced if a patient were not considered ready for elective operation until the use of the urinal or bed-pan had been accomplished in the situation and position anticipated after operation. Attempts have been made to relate the incidence of post-operative urinary retention to the site of operation or the type of anaesthetic used, but it may occur in any type of case if the patient has not learned to void in the recumbent position before operation. The routine insistence on this pre-operative care or training would save much time, inconvenience and distress.

I trust that I have made clear the responsibilities of the anaesthetist in the pre-operative care of the surgical patient. The team-work must begin long before the patient arrives in the operating room if the patient's welfare is our sincere concern. This requires admittance to hospital in adequate time to allow proper study, assessment and preparation for the "climax" of the patient's experience.

GYNECOLOGY

Report of Gynecological Case

Dr. Sam Kobrinsky

Grav. 1, Para. 1, Normal, no miscarriages, 1 child aged 4.

This woman presented herself on June 7th with the history of having had her L.M.P. April 20, 1947. Past periods had been regular occurring approximately every 28 days. Past history was essentially negative. She was diagnosed as being 6 weeks pregnant with some retroversion.

On June 13th, she reported, complaining of some backache in the lumbo-sacral region. Examination was essentially the same as on the previous visit. She was given a sedative (Amytal gr. ½ t.i.d.) and ordered to rest at home.

On June 15th, we were called to see her at home, as she was bleeding. She also complained of backache and had vomited a few times that day.

Physical examination was essentially negative: Urine, negative; R.B.C., 4,000,000; W.B.C., 9,050; Hemo, 78%; **Gr. B. Rh. Negative.** Some achromia and anisocytosis.

She continued to bleed moderately while in bed at the hospital. A morning specimen of urine on June 20th was reported negative for pregnancy by the South African frog test, and on June 21st, curettage was performed, the pre-operative diagnosis being incomplete abortion. Pathological report by Dr. O. C. Trainor on the tissue obtained was "Decidual tissue." Patient was allowed to go home on June 24th.

On June 28th, she came to the office complaining of weakness and lower abdominal pains—crampy in nature. This was regarded as being due to post-operative uterine contractions. She was reassured and allowed to go home with no treatment.

On August 8th, I was called to her home. This time she complained of severe lower abdominal pain and nausea. The pain had come on a few days previously and gradually increased in intensity to this date. On examination she was pale and perspiring, temperature was 101°. There was tenderness across the whole of her lower abdomen, and she was exquisitely tender in the R.L.Q.

She was sent in to the Grace Hospital with a tentative diagnosis of acute appendicitis—possibly ruptured. At the hospital, on P.V., there was an extremely tender mass in the right fornix. Much pain was produced on movement of the cervix.

Hemo., 57%; W.B.C., 13,500 with 74% polymorphs. Catheterized specimen was negative for albumen and sugar, with an occasional pus cell per H.P.F. We did not make a definite diagnosis, but we felt she had an acute abdominal condition and laparotomy was justified.

At operation, her pelvis was found to be full of old blood clot gluing together loops of small bowel and all her pelvic organs. The bowel was freed from the pelvis where possible, with great difficulty—the right broad ligament and tube which were filled with blood were ligatured and excised. There was a perforation at the uterine end of the tube. A plain gauze pack left in to stop

hemorrhage which was quite profuse and impossible to control otherwise, owing to the extreme friability of all the tissues.

We were unable to find a suitable blood donor pre-operatively owing to the rarity of Group B. Rh negative blood. However, during the course of the operation, she received 1200 ccs. of saline and 800 ccs. of plasma intravenously, and at the end of it her B.P. was 100/0.

Our diagnosis then, was ruptured tubal pregnancy of long standing—in view of the masses of dried old blood clot found in her pelvis, and the perforation in the uterine tube.

The first post-operative day, her Hemo. was 42% and her general condition was quite poor. In view of this, we felt she had to have some blood as a life-saving measure and she was given 250 ccs. of Gr. B. Rh. Positive blood. She had a slight chill lasting 10 minutes with these transfusions but was otherwise apparently unaffected. She received these daily for 4 days—then a suitable Rh Negative donor was found and she received 3 more on successive days.

In addition, she was given ½ cc. prostigmine intramuscularly O.H. IV for 6 doses in the first 24 hours post-operatively. Penicillin: 50,000 units O.H. III intramuscularly, Ferrous Sulph.; gr. x t.i.d. p.c.

On second day, post-operatively, gastric suction was started and had to be maintained for 72 hours.

Her condition improved steadily, her fever gradually subsided, her blood returning to Hgb. 73% and R.B.C. 4,080,000 by the 10th day. She was allowed up on the 12th day and discharged on the 15th post-operative day.

This case illustrates several interesting features of ectopic pregnancy. To begin with, it is one of the most frequently missed diagnoses in Medical Practice. For example, according to Burch and Seitchik of Nashville, Tennessee, writing in the American Journal of Obstetrics and Gynecology of December, 1945, a review of the literature revealed incorrect diagnosis ranging from 14.8% to 47% from 14 of the best Clinics in the United States—the average being 27.3%.

I believe one of the major reasons for this is that the average practitioner among us has the tendency to think of 'ectopic" in terms of the acute ruptured variety, with its sudden onset of severe pain, shock, air-hunger and marked abdominal tenderness with mass easily palpable by P.V.

The majority of patients with ectopic pregnancy have a much more obscure clinical picture when they first present themselves, and probably if we keep this in mind, the percentage of those we miss will be reduced.

The following are a few pertinent facts about the clinical picture ectopic pregnancy may present that should put us on guard against it:

A history of missed periods or any disturbance of menstruation in women between the ages of 20 and 40. Any woman who is suspected of being a threatened or inevitable abortion should have ectopic ruled out. In ectopic pregancy, uterine changes occur which are very similar to those occurring in normal intra uterine pregnancy. The uterus enlarges and decidua is formed in it. When the ectopic ovum dies or is disturbed by rupture, this decidua degenerates, is sloughed off and bleeding occurs— producing a picture very similar to threatened abortion.

On physical examination, important findings are tenderness on one or the other side of the lower abdomen. Presence of a palpable mass in either of the fornices or in the Pouch of Douglas, and pain on movement of the cervix.

The Lab. findings are not very helpful and may be misleading. In ectopic pregnancies, the decidual reaction is very spotty. If a diagnostic curettage is done, or curettage following the mistaken diagnosis of abortion, there may or may not be decidua present, depending on whether or not the pathologist gets tissue with some in it. However it is helpful if "chorionic" tissue is found because its presence rules out ectopic pregnancy.

Blood changes are very variable according to the state of the ectopic pregnancy. There may be high or low leukocyte counts; normal or sub-normal hemoglobin and R.B.C. counts. Normal or high sedimentation rates.

Biological pregnancy tests, again, are of little value as they may be positive if the foetus is still living, or negative if dead.

Aspiration of the cul-de-sac may be carried out in doubtful cases, the presence of old blood, i. e. blood with no roulette formation and crenation of the R.B.C.'s, give much help in making the diagnosis.

With my limited experience and after review of the literature it is my impression that one of the most important factors in the diagnosis of this condition is constantly bearing its possibility in mind.

Presenting

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[1]Ann. Otol. Rhin. & Laryng. 52:541, 1943.

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MEDICINE

Infection Cycles in Western Equine and St. Louis Encephalitis

J. McLintock

Contribution from the Virus Laboratory of the Manitoba Department of Health and Public Welfare and the Children's Hospital of Winnipeg

Investigators are generally agreed that the western equine and St. Louis encephalitis viruses have existed on the North American continent for a very long time. But the western equine virus was not recognized as a distinct entity till 1931 when Meyer, Haring and Howitt[1] isolated the virus from horses during an epidemic in the San Joaquin Valley in California. Since then the disease has been recognized as occurring in horses throughout the continent. In epidemics of encephalitis during the summers of 1937 and 1938 the virus was isolated and specific neutralizing substances were demonstrated in the sera of human patients[2, 3, 4, 5, 6, 7], and in later epidemics from the spinal fluid[8, 9].

St. Louis encephalitis virus was first isolated in 1933 from the brain tissues of fatal human cases occurring during epidemics in 1932 and 1933 in St. Louis and Kansas City[10, 11, 12]. This was the first time a virus had ever been established as the etiologic agent of acute human encephalitis in North America[13]. Antibodies to St. Louis encephalitis virus have since been demonstrated in the sera of horses[14, 15, 16, 17, 18, 19, 20].

The source and manner of spread of these two viruses has presented a puzzling problem that has taxed the ingenuity and imagination of a large number of investigators. It was evident even in the earliest outbreaks that individual contact could not explain the occurrence and spread of the infections while certain aspects of the epidemics suggested animal and avian host reservoirs and vector transmission. During the past few years this concept has been amply substantiated, at least as far as vector transmission is concerned.

In 1932 and 1933 Meyer[23, 24] had suggested the probable role of an arthropod vector for the western virus on the basis of epidemiological and laboratory observations. Casey and Broun[25], on the basis of a statistical study, made a similar suggestion for the St. Louis virus in 1938. The first experimental support for this view was provided by Kelser[26] in 1933 when he reported successful transmission of the western virus by **Aedes aegypti** (L.), the yellow fever mosquito. This has been amply confirmed by others with the same and other species of mosquito[15, 26, 27, 28, 29, 30, 31, 32, 33, 34]. Mitamura and his associates[35] in 1937 were the first to claim transmission of the St. Louis virus using **Culex pipiens** but this was not fully credited by many on this continent until Reeves et al[36] provided corroboration in 1942.

Further evidence to support the theory of mosquito transmission of the two viruses under discussion came from reports of the isolation of the viruses from naturally infected vectors. Hammon et al[37] reviewed the unsuccessful attempts which were made prior to 1940 to isolate virus from wild-caught specimens of a wide range of arthropods. Then in 1941 and 1942 Hammon et al[37, 38] reported the isolation of both viruses from wild-caught **Culex tarsalis** Coq. with an infectivity rate of 1:386. Later, an infectivity rate of almost 1:100 was found in this species[39].

Again in 1943, the same workers reported isolation of the St. Louis virus from wild-caught **C. pipiens**[40] and of the western virus from wild-caught **Aedes dorsalis**[39] and **Culiseta inornata**[27].

Up to the present only four of the known experimental vectors have been found harbouring one or both of these viruses in nature. Three of these are among our most abundant species in Manitoba, and one of them **(C. tarsalis)** has also been found naturally infected in this province[41]. Another species of **Culex (C. restuans)** has been found infected here[42] but it is not yet known if this latter species is an experimental vector or not.

There is now no doubt that these infections are carried to man and horses by mosquitoes[29, 33], it only remains to determine which species are actively engaged in spreading the diseases in any particular epidemic or endemic area.

In connection with the source of the mosquito's infective blood meal, neutralization and complement-fixation tests on the sera of a wide range of domestic and wild animals and birds have demonstrated the presence of antibodies of both viruses in a high proportion of the animal and bird populations in both epidemic and non-epidemic areas, and particularly in the domestic species[16, 17, 19, 43, 44]. The infection rates ran as high as 57% where epizootics occurred. In addition, the western equine virus has been isolated from a naturally infected prairie chicken[45].

Clinical symptoms are known to develop in horses, guinea pigs, monkeys, rats, rabbits, the Richardson ground squirrel, mice, young birds, and the Syrian hamster[19, 23, 24, 46, 47, 48, 49, 50, 51]. In the other animals and birds in which antibodies have been found the infection is inapparent but Hammon and his associates[15, 36, 40, 52] have shown that the viruses appear in high titre in the blood of pigeons, doves and chickens 13-72 hours after being infected by the bite of a mosquito. Thereafter the

viruses disappear from the blood but are replaced by antibodies which also show a high titre. In experimentally inoculated chickens the St. Louis virus was found to persist in the blood for as long as five days[54].

The facts thus far presented led to the belief that the infection cycle was bird—mosquito—bird with man and horses as accidental hosts as a result of mosquito bites[55]. But this still left unanswered the question how the virus overwinters in a climate such as that of Manitoba. Of all the known bird and mammalian hosts of these viruses none can be considered as a true reservoir i.e. as having a chronic or latent infection that can serve as a source of infection over a long period of time. It has been shown that the viruses multiply in the mosquito and remain in the mosquito for the duration of its life[15, 32, 36, 52, 56], but virus has never been found in an overwintering mosquito[57, 58], and in Manitoba we have thus far been unable to find any overwintering specimens of the possible vectors (all species of **Culex** and **Culiseta** are believed to overwinter as adults, our species of **Aedes** all overwinter in the egg). Also, virus has not been found in the eggs or offspring produced by experimentally infected mosquitoes[55].

However, recently these viruses have been recovered from the common chicken mite and the northern fowl mite[59, 60, 61, 62]. Also, it has been discovered that chicken mites can be infected with the St. Louis virus by feeding on chickens with viremia and that these mites can pass the infection to their offspring through the egg[60, 63]. Both these mites are common parasites of wild and domestic birds in Manitoba.

Hence it appears at present that there are at least two infection cycles involved in the etiology of these viruses. The first cycle, mite—bird—mite, may be active all year round depending on the location and the mite involved (the northern fowl mite spends its entire life on the host; the chicken mite only goes on the host to feed). Neither of these mites is able to pierce the skin of humans or horses, although there have been reports of them causing a dermatitis in humans. The second cycle, bird—mosquito—bird can occur only during the season when the mosquito vectors are active and it is during this season that man and horses become accidental hosts as a result of mosquito activity. The possibility of a mosquito ever infecting a horse from a horse or a man from a man is extremely remote. The titre of virus in the blood of man and horse is so low and its duration so short, that no one has ever been able to infect a mosquito by allowing it to bite a human or horse even when virus was known to be present in the blood.

The final question to be raised here comes from the epidemiology of these diseases viz. why, with these two cycles active year after year do epidemics occur only at odd intervals of years? The answer is to be found mainly in the biology and life histories of the mosquito vectors.

In the Yakima Valley of Washington State and in California, it has been demonstrated that **Culex tarsalis** is the principal vector in those areas[28, 52]. In Manitoba the available evidence indicates that either **C. tarsalis** or **C. restuans**, or both species, are the principal vectors to humans. We know that both these species feed on birds and that **tarsalis** will feed on humans. In mosquitoes, as in all other insects, the rate of development of the ovaries depends on the prevailing temperatures so that the larvae of our **Culex** species are never found in this province before the third week in June. Since development of the embryo within the eggs of **Culex** is continuous from the moment that they are laid (unlike those of most **Aedes** which have to be frozen or desiccated before their development can proceed) the eggs must be laid **on** water, so that their larvae are usually found in the more or less permanent types of standing water (water barrels, lily ponds, sloughs, seepage puddles, horse troughs, etc.). Rate of growth and development of the larvae is also dependent on the prevailing temperatures and, unlike the aedines, the presence or absence of **Culex** is only indirectly dependent on rainfall (it is possible to have a fairly large population of **Culex** even in a comparatively dry year).

During the past six years, beginning in 1942, and using methods described elsewhere[64], this laboratory has been studying the seasonal and annual variations in the mosquito population of southern Manitoba. Considering all species taken together (there are 30-odd species reported from the province of which we have taken 21 in our traps) the summer of 1944 produced the largest mosquito population in the six years.

Our records for the current year are not yet complete but the figures so far available indicate that the **Culex** population of 1947 was at least five times greater than in any year since the survey began. The abundance of this genus is related to the high average mean weekly temperatures from the middle of July till the end of August which, during the past summer, were higher than in any year since 1941.

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Acute Otitis Media in Scarlet Fever

Ellen F. Taylor, M.D.

King George Hospital, Winnipeg

In scarlet fever the upper respiratory tract has always borne the brunt of the infection, first the pharynx, next the nasal passages with their numerous sinuses and then the middle ear.

In the early twenties of this century acute otitis media was considered the most devastating of all the complications of this disease. It was dreaded, not only for the social and economic loss caused by deafness but also for the widespread destruction that so often followed in its wake, i.e. mastoiditis, brain abcess, meningitis, death. The physician struggled right valiantly with the weapons at his command but often suffered ignominious defeat at the hands of the enemy.

The past twenty years have been highlighted by many important discoveries which have changed the above picture.

The records for 1923-25 of the King George Hospital show the high incidence of upper respiratory tract involvement as in Table No. I.

Table I, 1923-25

Rhinitis	15%
Acute Otitis Media	6%
Mastoiditis	2.4%
Average healing time of mastoidectomies	42 days

In 1928 scarlet fever antitoxin was given to all scarlet fever patients who were classified as moderately or severely ill. In this group of five hundred cases a decided reduction in the complications of the upper respiratory tract was noted. Table II shows the reduction obtained by this method of treatment.

Table II

Treatment—Scarlet Fever Antitoxin

Rhinitis	10%
Acute Otitis Media	1.8%
Mastoiditis	.8%
Mastoidectomy Healing Time	28 days

In the following paragraphs it should be remembered that the scarlet fever streptococcus is considered to be resistant to the sulfas and to penicillin; that it is difficult to obtain a high concentration of either drug in an air cell or a pocket of pus and that the exudate from the acute otitis media of scarlet fever contains more than one type of organism.

Sulphonilamide was the first of the sulfas used put by 1939 sulfathiazole was the drug of choice, the dosage varying with the age and weight of the patient. Local application of the powder was used

and was discontinued because of the excoriation of the aural canal. The powdered form was also dusted into the mastoidectomy wound at the close of the operation. At no time were we satisfied that the results were as favorable as those reported in the acute otitis media of general practice.

However, the sulfas were "Magic Powders" when meningitis occurred. The streptococci disappeared from the spinal fluid in from two to four days. The mastoiditis still needed a mastoidectomy.

The number of scarlet fever patients, admitted during 1946, was few compared with admissions of other years and one hesitates to express an opinion on the benefits derived from the use of penicillin, yet, Tables No. III and IV are interesting if not conclusive.

During the year 1946 the patients were treated with 9,000 units of scarlet fever antitoxin intramuscularly on admission. If acute otitis media developed they received penicillin 20,000 units every three hours and sulfathiazole. The dosage of the sulfathiazole was usually limited to forty or sixty grains in the twenty-four hours. When the tympanic membrane was perforated a penicillin solution consisting of 500 units in one centimeter of normal saline was instilled in the aural canal during the daytime. Table No. III indicates the results.

Table III

Treatment—Scarlet Fever Antitoxin, Sulfathiazole, Penicillin

Acute Otitis Media	1.2%
Healing Time	12 days
Mastoiditis	0

During the same year three patients were admitted with the complications already present. They were probably seen by the doctor for the first time when he was called to relieve pain. They had not received antitoxin and their course in hospital was as follows.

Table IV

Treatment—Sulfathiazole, Penicillin

3 cases of acute otitis media	% not known
Healing time of A.O.M.	16 days
Mastoiditis	1 case
Mastoidectomy healing time	51 days

The three patients in Table No. IV had been ill from a few days to three weeks before coming under treatment. They had probably received an insufficient or unbalanced diet. They may have been unduly exposed to the elements. One should not claim that the difference between Table No. III and IV is entirely due to those in No. III having been treated with antitoxin.

A sero-purulent or purulent discharge was present in all cases reported above.

In 1947 a small number of ear aches have been reported. When, on examination, the injection was seen to be limited to a streak along the handle of the malleolus or a mild diffuse redness of the drum, these cases seemingly recovered on sulfathiazole and penicilin without going on to pus formation in the middle ear. Over these the E.N.T. surgeons are uttering a word of warning.

Some of the surgeons are finding that from these apparently innocent infections deafness develops in a few weeks or months. The deafness being caused by faulty absorption of the inflammatory exudate with consequent limitation of movement of the ossicles. They advise early paracentesis of a tympanic membrane unduly inflamed.

Summary

The incidence of acute otitis media is lessened by early administration of scarlet fever antitoxin.

A small number of cases have responded to sulfathiazole and penicillin.

Early paracentesis should not be omitted.

In conclusion I wish to thank Drs. F. D. McKenty and E. J. Washington for their constructive criticism of this paper.

Paediatrics

Drs. Reginald W. Whetter, Murray R. Hodgson and W. B. Janes
Steinbach, Manitoba

Diabetes In An Infant

A ten months old male child was brought in by his parents because for two days he had vomited frequently and was feverish and "cranky." He was a first child but apparently had been thriving since his birth and looked healthy and well nourished. There were no abaormal findings on examination except a temperature of 100 degrees. General advice was given and he was taken home. He was brought back next day and this time he looked quite ill. The temperature was 100.6 and a few rales were heard at the base of the right lung. He was admitted to hospital where it was noticed that his breath had a distinct sweetish smell. He was breathing very rapidly and it was suspected that the infection in the lung was not severe enough to account for his state. A specimen of urine was obtained and was found to contain 3 plus sugar. He was put on treatment for diabetes with insulin. The lung condition improved and he took his feedings well with only occasional vomiting. In spite of this, however, he went downhill and died five days after admission.

Diabetes in children is very serious. According to John's recent book 85 cases have been reported as occurring during the first year of life. Usually it was a "cold" or some similar infection that revealed the diabetes. This suggests that urinalysis is as important in children as in adults because it is easier to treat the condition before grave signs develop.

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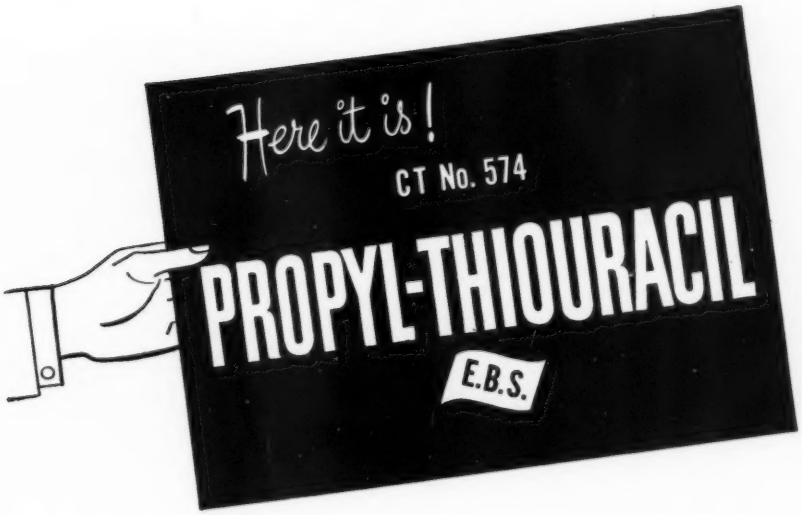

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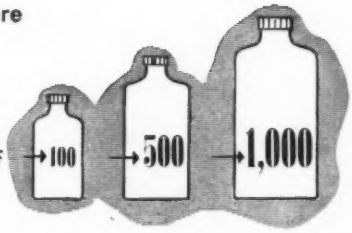

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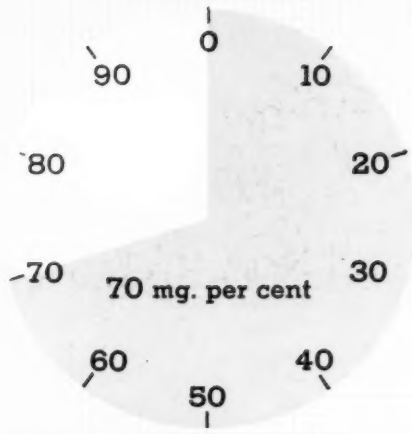

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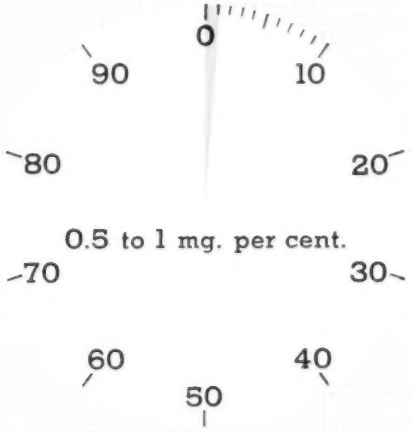

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A Case For Diagnosis

Dr. J. M. Kilgour and Dr. J. D. Adamson

Dr. Kilgour: A woman of 46 with history of previous admission elsewhere in an acute depression, for which she received electric shock therapy, and in May, 1946, admitted to the Winnipeg General Hospital with an acute urinary infection, from which she recovered. Prior to present illness she was well and working comfortably on a night shift. On September 15, 1947, first noticed chills, fever and malaise. Later the same day severe pain began in the upper third of the anterior surface of the right thigh; she had difficulty walking and there was acute tenderness over the same area.

September 16, 1947: Admitted to the surgical service of W.G.H. Temperature 101°. White blood count 23,000. Sedimentation rate 43 mms. in one hour. Physical findings were essentially negative with the exception of the pain and tenderness noted above. She received penicillin; her temperature began to drop and was normal in six days and has been normal ever since. X-ray of right hip, femur negative. X-ray of chest, negative. K.U.B. plates, negative. Intravenous pyelogram, negative.

September 23, 1947: Was seen for the Department of Medicine by Dr. J. D. Adamson, who felt that she was improving, and at that time she felt fairly well. A tentative diagnosis of "virus epidemic 1947" was made and she was transferred to Medicine. Examination at this time showed persistent spasm of the psoas and adductor muscles of the right thigh and tenderness as noted before was still present. Pain in the area was still so acute as to interfere with sleep. White blood count at this time was normal. Cerebro-spinal fluid examination was negative. Sedimentation rate was 60 mms. in one hour. Circumference of the right thigh was ½ inch less than that of the left; the calves were of equal size. There was no oedema or induration of the affected area. Wassermann, blood and spinal fluid, were both negative. Neurological examination remained negative.

Dr. Adamson: This type of case had been common in the city for the past three months. The combination of chills, fever and headache of sudden onset would suggest an initial bacteremia or viremia. Can a sudden viremia produce leucocytosis with a shift to the left, as does a tuberculous bacteremia? One might suspect the presence of a new virus or other organism. These cases have all presented persistent muscle pain, showing remissions and exacerbations. In some cases the pain at onset has been so severe as to mimic perforated peptic ulcer.

Confirmation of the widespread nature of similar cases in the city was obtained from several general practitioners.

Anuria Following Transurethral Resection

Dr. D. Swartz

This was a man, aged 75, known to have had prostatism for 8 years. He was admitted in acute retention, and the bladder was slowly decompressed. On admission blood pressure was 125/70, haemoglobin 80%, blood urea nitrogen 26 mgms.%. Following decompression blood urea nitrogen dropped to 21 mgms.%. Blood creatinine was 2.2 mgms.%. Physical examination was otherwise negative, and a diagnosis of benign prostatic hypertrophy was made.

On September 5th a transurethral resection was done. During the operation systolic blood pressure rose to 200 mms. and skin developed a bluish tint, despite oxygen inhalations. There was more than the usual amount of bleeding which appeared to come generally from the periprostatic venous plexus. Estimated blood loss at operation was 800 ccs. This was replaced by transfusion.

After return to the ward haemorrhage recurred and a second operation was performed, at which the prostatic bed was packed through suprapubic cystotomy. Blood pressure was maintained despite blood loss. Following the second operation the patient remained cyanotic, with an irregular full pulse and was semi-comatose. On the following morning the patient was jaundiced and had passed no urine. Blood urea nitrogen at this time was 45 mgms.%, blood creatinine 3.3 mgms.%, and CO_2 combining power 39 volumes %.

Treatment consisted of daily transfusions and intravenous sodium bicarbonate solution until CO_2 combining power reached 65 volumes %. Serum bilirubin estimation at this time gave a level of approximately 5% (normal ½%). Plasma showed haemolysis. Despite all supportive measures the patient died on the 11th post-operative day.

Discussion

It is considered that the anuria is secondary to haemolysis, and the haemolysis is due to the introduction of relatively large amounts of plain water into periprostatic veins opened in the course of complete transurethral prostatectomy. This is a common occurrence during transurethral operation, and haemoglobinuria occurs constantly post-

operatively but clears up rapidly. Free haemoglobin disappears from the plasma in 36 hours; approximately one-third of it is excreted through the kidneys, while the remaining two-thirds is removed by the reticulo-endothelial system. Free haemoglobin in the kidney produces vaso-constriction, thus contributing to anaemia of the kidney which is already present due to arteriosclerosis, loss of blood during the operation and post-operative fall in blood pressure. The pathological picture is one of lower nephron nephritis and thrombosis of the smaller veins of the kidney stroma. The urine shows high acidity, low fixed specific gravity, red blood cells, granular and pigment casts, and benzidene reaction is positive.

It is thought that as a result of the nephritis selective re-absorption is impaired and there is total re-absorption instead with consequent electrolyte imbalance. Also tubules may be blocked by casts. These factors may be present singly or in any combination, along with the systemic effects of lowered blood pressure, blood loss, etc., mentioned before, and oliguria or anuria results.

This same or similar pathological processes are thought to be present in the following conditions: extensive burns, crush injuries, utero-placental damage, sulfonamide intoxication, heat stroke, certain vegetable poisonings, e.g. "mushrooms."

The danger of excessive amounts of water being introduced intravenously during this operation was first noted at the Mayo Clinic, and the use of a 4% glucose solution for irrigation during operation has been suggested.

Dr. C. B. Stewart: This complication of prostatic surgery was unknown earlier because of incomplete resection. Since complete transurethral resection has been introduced as the operation of choice the complication has become more prominent. It may be noted that anuria may develop without clinical jaundice. Anuria or oliguria may last 6 to 9 days, after which the patient may recover. Treatment is essentially as outlined by Dr. Swartz. Solutions which have been suggested to replace water obscure vision and actually make the operation more risky than usual. A solution of glycine is currently in use at Ann Arbor. It is suggested that solutions of this type be reserved for use in cases where large venous sinuses are opened during operation.

Dr. Earn presented a report of the post-mortem examination. Each kidney weighed 100 grams or more than normal. Cortex was pale, the medulla intensely colored. Microscopic examination showed lower nephron nephrosis. The pathological diagnosis was:

(1) Uremia.
(2) Lower nephron nephrosis.
(3) Acute pericarditis.
(4) Right bronchopneumonia.
(5) Ethmoid sinus abscess.

Dr. A. M. Campbell suggested transfusion reaction as a cause of haemolysis.

At the close of the meeting the assembled doctors observed one minute's silence in memory of Dr. A. T. Cameron.

A Case of Jaundice With Unusual Features

Dr. L. Cherniack and Dr. M. R. MacCharles

Dr. Cherniack reviewed the etiology of jaundice, quoting a report of Hartmann of the Mayo Clinic, who analyzed 450 cases as follows:

Intrahepatic lesions	23%
Haemolytic	7%
Obstructive	70%

Of the obstructive cases, stone, stricture and carcinoma are the commonest.

The case presented was that of a man of 74 years who had been well prior to the onset of illness, two months before admission on August 8, 1947. At this time he had eaten some canned fish which immediately brought on an acute gastro-enteritis and diarrhoea with loose, pale stools which persisted until admission. On admission he showed marked jaundice with a temperature of 102, pulse 80, and blood pressure 135/70. He was comfortable and his only complaints were loss of appetite and itching skin.

Laboratory Investigation

Urine showed no urobilinogen.

Stools, grey with no bile or urobilinogen; occult blood 1 plus.

Haemoglobin, 70%.

Wassermann, negative.

Sedimentation rate, 115 mms. in 1 hour.

Icterus index, 168.

Blood cholesterol, 296 mgms. %.

Alkaline phosphatase, 47 King units.

Cephalin flocculation test, 2 plus.

Total blood protein, 5.8%.

Prothrombin time, 17 seconds, 40% of normal.

Barium series repeatedly showed a filling defect in the second part of the duodenum which was considered to be evidence of a new growth, most likely carcinoma of the ampulla of Vater.

On August 18th, a laparotomy was done and showed normal duodenum and common duct. Liver biopsy at this time showed early cirrhosis and obstructive cholangitis. Post-operatively the patient continued drowsy, became uremic, and died ten days later.

Dr. Nicholson presented the post-mortem findings: An obese man, showing intense yellow jaundice, enlargement of left ventricle and bilateral infective pleurisy with 300 ccs. of opaque fluid present in the right pleural sac. The liver

was dark green in color, bile ducts appeared normal with intact lumens; pancreas and gall bladder were normal. The liver presented a foamy appearance, characteristic of post-mortem growth B. Welchii, which had masqued all evidence of the pre-existing pathological state. The spleen presented the same picture. Culture of these organs yielded B. Welchii and B. Coli.

Subsequent information on this patient revealed that on May 1, 1947, he had reported for treatment of a primary chancre of four days duration. On May 9, 1947, a dark field examination of this lesion was positive for Treponema Pallidum. Antiluetic treatment was begun, and after a few doses of neoarsphenamine he developed jaundice. This treatment was discontinued and penicillin therapy begun. The jaundice re-appeared on July 16th and was still present at the time of admission to the Winnipeg General Hospital, as noted above.

Dr. M. R. MacCharles: High icterus index is almost always indicative of an obstructive jaundice. Patients with carcinoma of the ampulla of Vater remain relatively well, since this lesion is only locally malignant and responds well to excision.

Dr. J. P. Adamson: Is it not true that jaundice due to arsenical poisoning usually simulates obstructive jaundice?

Experiences at Memorial Hospital, New York

Dr. D. W. Penner

Dr. Penner reported on a recent visit to New York, during which most of his time was spent at Memorial Hospital. Carcinoma remains the second largest cause of death. Since 1940 the anti-carcinoma drive has been in progress and in common with other institutions the Memorial Hospital is expanding its facilities of research and treatment.

Research

1. Radio active isotopes are under investigation from two standpoints; (a) as therapeutic agents, e.g. radioactive iodine in treatment of thyroid carcinoma, (b) as tracer elements in the metabolism of various neoplasma. In general, it may be stated that as yet no treatment with radioactive isotopes can replace current methods.

2. Research continues in the field of urinary keto-steriods.

Treatment

The present trend of the treatment of tumors of thyroid and salivary glands is to limit treatment to surgery along with radiation for palliation only. A recent review of salivary gland tumors at the Winnipeg General Hospital showed a recurrence rate of 30%. A review of 1,000 such cases at Memorial Hospital showed a recurrence of 5% in mixed tumors of the salivary gland. The treatment at Memorial Hospital consisted of complete but not radical excision.

Cancer prevention clinics have been set up to provide complete investigation of any patient over the age of 35. Elaborate facilities are necessary for this work and large numbers of normal people are examined for each early cancer discovered, making the overall cost very great.

The use of vaginal smears in diagnosis of uterine carcinoma is established as a definite aid to diagnosis in experienced hands but still must be confirmed by biopsy.

St. Boniface Hospital

Scoliosis — Case Presentation

Dr. H. Funk

Scoliosis is defined as a lateral curvature of the spine and can be classified as: 1, Functional; 2, Structural; 3, Miscellaneous.

1. Functional. This occurs usually during school age, is not associated with any pathological changes in the vertebral bodies and can be voluntarily corrected by the patient. Posture is probably a large factor. Basically there Whyte generalized weakness of the musculature.

2. Structural. This includes most of the scoliotic deformities.

(a) Anterior Poliomyelitis—Scoliosis may develop a long time after the disease has subsided or without any previous history of illness.

(b) Congenital abnormalities — Hemivertebrae are the commonest abnormalities and are frequently associated with others particularly spina bifida.

(c) Neurologic Diseases—Includes Friedrich's Ataxia, muscular dystrophy, spastic paraplegia and hysteria.

3. Miscellaneous. Collapse of lung, empyema, rickets, etc.

A slight degree of scoliosis may be suspected when a patient has an elevated shoulder or prominent scapula or prominent ribs on one side, or one hip shows lateral fullness or it may be discovered accidentally by x-ray for some other condition.

Determination of the curve. This is estimated from the first nearest neutral and unrotated vertebral body at either end of the curve to the most rotated vertebral body at the crest of the curve and termed the apex of the curve.

Where there is more than one curve the curves are distinguished as Primary and Compensatory. The primary curve, if two exist, is usually the larger, or it is the one least flexible and least

correctable. When three curves exist the centre one is usually the Primary.

The Compensatory curve may completely compensate the Primary curve so that complete balance occurs and, apart from deformity, the patient has no symptoms. If this balance is not developed the worst deformity results.

A scoliosis may occur any time during infancy, childhood or adolescence and it may be progressive or may stop as a mild stationary curve. But this arrest may be only temporary and rapid progress may appear during the active growth period, in girls about eleven to sixteen years of age, in boys, twelve to seventeen years. The slowest growth period in children is approximately from six to eleven years and during this period a scoliosis may remain most stationary.

Unrotated Scoliosis

There is a group of scolioses which show no rotation of the involved vertebrae, e.g.

1. Hysterical—apex at Lumbosacral junction.
2. Sciatic Scoliosis.
3. Sfatic Scoliosis, e.g. leg inequality. If rotation does occur it appears late.
4. Scoliosis due to spastic paralysis and spinal cord tumors.
5. Empyema.

Indications for Surgery

1. Progressive curvature in a young growing child.
2. Curvature with objectionable deformity and imbalance.
3. Pain, fatigue and poor chest physiology.

Case

J. L., age 14. First seen September 9, 1946, complaining of spinal curvature which is progressive. No other complaints. No history of anterior poliomyelitis. At age ten had pneumonia but not an associated empyema. Two months previously was checked by travelling clinic and no evidence of tuberculosis found.

Examination

Well built, healthy boy. Back movements completely free. Right ribs projected considerably posteriorly. Scoliotic deformity convex to the right and involving the entire thoracic spine. No evidence of muscle weakness or paralysis. The curvature was not correctible by posture or lateral flexion.

X-ray films demonstrated a primary curve of the dorsal vertebrae with convexity to the right and compensatory curve in the upper lumbar spine convex to the left.

Treatment

Admitted to hospital September 15, 1946. A Risser plaster jacket applied to head and neck and right thigh. This cast became broken at the neck and right hip and was repaired and both thighs included. Anterior and posterior hinges were incorporated with the joint overlying the apex of the thoracic curve. A large V was excised over apex on the right and cast cut across at a similar point on the left side. Wedging was begun and improvement in the deformity checked by x-ray. When the maximum correction was obtained the cast was repaired in the corrected position and a large window cut out of the back to permit surgery.

Because of the extent of spine involved; namely fifteen vertebrae, spinal fusion had to be done in two stages, first stage October 25 and second stage November 11. There were no serious postoperative complications and he was discharged November 28 to his home to await consolidation of the fusion, a minimum period of three months.

Medico-Historical

The Law

Medicine is of all the arts the most noble; but owing to the ignorance of those who practice it, and of those who, inconsiderately, form a judgment of them, it is at present far behind all the other arts. Their mistakes appear to me to arise principally from this, that in the cities there is no punishment connected with the practice of medicine (and with it alone) except disgrace, and that does not hurt those who are familiar with it. Such persons are like the figures which are introduced in tragedies, for as they have the shape, and dress, and personal appearance of an actor, but are not actors, so also physicians are many in title but very few in reality.

Whoever is to acquire a competent knowledge of medicine, ought to be possessed of the following advantages; a natural disposition, instruction, a favourable position for the study, early tuition; love of labor; leisure. First of all a natural talent is required, for, when nature opposes, everything else is in vain; but when Nature leads the way to what is most excellent; instruction in the art takes place, which the student must try to appropriate to himself by reflection becoming an early pupil in a place well adapted for instruction. He must also bring to the task a love of labor and perseverance, so that the instruction taking root may bring forth proper and abundant fruits.

Instruction in medicine is like the culture of the productions of the earth. For our natural dis-

position is, as it were, the soil; the tenets of our teacher are, as it were, the seed; instruction in youth is like the planting of the seed in the ground at the proper season; the place where the instruction is communicated is the food imparted to vegetables by the atmosphere; diligent study is like the cultivation of the fields, and it is time which imparts strength to all things and brings them to maturity.

Having brought off these requisites to the study of medicine, and having acquired a true knowledge of it, we shall thus, in travelling through the cities, be esteemed physicians not only in a name but in reality. But inexperience is bad treasure, and a bad fund to those who possess it, whether in opinion or in reality, being devoid of self-reliance and contentedness and the nurse both of timidity and audacity. For timidity betrays a want of powers and audacity a want of skill. There are, indeed, two things, knowledge and opinion, which the one makes its possessor really to know, the other to be ignorant.

Those things which are sacred, are to be imparted only to sacred persons; and it is not lawfull to impart them to the profane until they have been initiated in the mysteries of the Science.

Hippocrates "The Law."

Death in Cairo

The present epidemic of cholera which is ravaging Cairo reminds us that this city during its 2,500 years of existence has seldom been free from pestilence of some sort. Below is Kinglake's description of death in Cairo a hundred years ago.

As soon as I had seen all that interested me in Cairo and its neighbourhood I wished to make my escape from a city that lay under the terrible curse of the plague, but Mysseri fell ill in consequence, I believe, of the hardships which he had been suffering in my service. After a while he recovered sufficiently to undertake a journey, but then there was some difficulty in procuring beasts of burthen, and it was not till the nineteenth day of my sojourn that I quitted the city.

During all this time the power of the plague was rapidly increasing. When I first arrived, it was said that the daily number of "accidents" by plague, out of a population of about 200,000, did not exceed four or five hundred; but before I went away the deaths were reckoned at twelve hundred a day. I had no means of knowing whether the numbers (given out, as I believe they were, by officials) were at all correct, but I could not help knowing that from day to day the number of the dead was increasing. My quarters were in one of the chief thoroughfares of the city, and as the funerals in Cairo take place between daybreak and noon (a time during which I generally stayed in my rooms), I could form some opinion as to the briskness of the plague. I don't mean that I got up every morning with the sun. It was not so; but the funerals of most people in decent circumstances at Cairo are attended by singers and howlers, and the performances of these people woke me in the early morning, and prevented me from remaining in ignorance of what was going on in the street below.

These funerals were very simply conducted. The bier was a shallow wooden tray carried upon a light and weak wooden frame. The tray had in general no lid, but the body was more or less hidden from view by a shawl or scarf. The whole was borne upon the shoulders of men, and hurried forward at a great pace. Two or three singers generally preceded the bier; the howlers (these are paid for their vocal labours) followed after; and last of all came such of the dead man's friends and relations as could keep up with such a rapid procession; these, especially the women, would get terribly blown, and would struggle back into the rear; many were fairly "beaten off." I never observed any appearance of mourning in the mourners; the pace was too severe for any solemn affectation of grief.

When first I arrived at Cairo the funerals that daily passed under my windows were many, but still there were frequent and long intervals without a single howl. Every day, however (except one, when I fancied that I observed a diminution of funerals), these intervals became less frequent and shorter, and at last, the passing of the howlers from morn to noon was almost incessant. I believe that about one-half of the whole people was carried off by this visitation. . . .

At this time I was informed that of 25,000 people at Alexandria, 12,000 had died already; the Destroyer had come rather later to Cairo, but there was nothing of weariness in his strides. The deaths came faster than ever they befell in the plague of London: but the calmness of orientals under such visitations, and their habit of using biers for interment instead of burying coffins along with the bodies, rendered it practicable to dispose of the dead in the usual way, without shocking the people by any unaccustomed spectacle of horror. There was no tumbling of bodies into carts as in the plague of Florence and the plague of London; every man, according to his station, was properly buried, and that in the accustomed way, except that he went to his grave at a pace more than usually rapid. . . .

I happened to be rather teased at this time by a sore throat, and I thought it would be well to get it cured if I could before I again started on my travels. I therefore inquired for a frank doctor, and was informed that the only one then in Cairo was a Bolognese refugee, a very young practitioner, and so poor that he had not been able

to take flight as the other medical men had done. At such a time as this it was out of the question to send for a European physician; a person thus summoned would be sure to suppose the patient was ill of the plague and would decline to come. I therefore rode to the young doctor's residence, ascended a flight or two of stairs, and knocked at his door. No one came immediately, but after some little delay the medico himself opened the door and admitted me. I, of course, made him understand that I had come to consult him, but before entering upon my throat grievance, I accepted a chair, and exchanged a sentence or two of commonplace conversation. Now the natural commonplace of the city at this season was of a gloomy sort—"Come va la peste?" (how goes the plague?), and this was precisely the question I put. A deep sigh, and the words, "Sette cento per giorno, signor" (seven hundred a day), pronounced in a tone of the deepest sadness and dejection, were the answer I received. The day was not oppressively hot, yet I saw that the doctor was transpiring profusely, and even the outside surface of the thick shawl dressing-gown in which he had wrapped himself appeared to be moist. He was a handsome, pleasant-looking young fellow, but the deep melancholy of his tone did not tempt me to prolong the conversation, and without further delay I requested that my throat might be looked at. The medico held my chin in the usual way, and examined my throat; he then wrote me a prescription, and almost immediately afterwards I bade him farewell, but as he conducted me towards the door, I observed an expression of strange and unhappy watchfulness in his rolling eyes. It was not the next day, but the next day but one, if I rightly remember, that I sent to request another interview with my doctor. In due time Dthemetri, my messenger, returned, looking sadly aghast. He had "met the medico," for so he phrased it, "coming out from his house—in a bier."

Kinglake "Eothen."

Book Review

Surgical Treatment Series Edited by Bancroft and Humphreys

"The Soft Tissues" is one of a series of integrated volumes comprising a complete but up to the present unfinished compendium, published by J. B. Lippincott Co. Five hundred and twenty pages and two hundred and forty-four illustrations are compressed into a well bound, easily handled volume of royal octavo. Type, paper, arrangement and grammar are uniformly excellent. Twenty-one American authors contribute to this volume. This work is **highly** recommended, with the following individualistic remarks.

It appears that the "mechanical" treatment of hernia means only "non-operative." There are still some surgeons who will not agree with the statement that "the Bassini operation is the ideal for the treatment of indirect inguinal hernia." We are not impressed by the torrential array of mathematical formulae provided to aid the surgeon in his management of the biochemical pathology of burns. We rejoiced in the acknowledgment of conservatism in the treatment of carbuncles. But we still do not know when, where or why to ligate large veins of the lower extremity for conditions with long names and few symptoms.

C. E. Corrigan.

The Care of the Feet

"The Care of the Feet," by Alexander Gibson, F.R.C.S. Esq., is a small, sixteen-page booklet written at the request of the Federal Government and distributed free by the Provincial Departments of Health. It is available in French as well as in English. The booklet is written in a simple, interesting way likely to hold the attention of the lay readers to whom it is addressed. It discusses the structure and functions of the normal foot and its purpose is to advise its readers how to keep their feet normal. There are 20 diagrammatic illustrations. Any reasonable number of copies can be obtained by writing or telephoning to the Department of Health.

Circular to Physicians

An Order-in-Council has been passed and published in the Canada Gazette adding the drug Amidone, also known as Methadon and by various trade names, to the Schedule of the Opium and Narcotic Drug Act. Under the law, this Order-in-Council becomes effective on November 7th next, i.e., thirty days after its publication in the Canada Gazette, and from that date on, Amidone will be administered and controlled under precisely the same narcotic regulations as Morphine, Heroin, or any other scheduled narcotic drug. The exact wording of the addition to the Narcotic Schedule is as follows:

"(13) 4-4-Diphenyl-6-Dimethylamino-Heptanone-3, under whatever trade name it may be offered for sale or sold, for example, Amidone, Dolophine, Methadon."

K. C. Hossick,
Chief, Narcotic Division.

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Presidential Address

Delivered at the Adjourned Annual Meeting of the Manitoba Medical Association, October 15th, 1947, by Dr. J. Roy Martin, Retiring President

It has been suggested that the subject of my address tonight should be on the need for further medical services in Rural Manitoba.

May I first of all state that the ideas contained herein are my own, and while I believe they represent fairly well the considered opinion of the majority of our members, yet, I would like you to accept them as definitely my own opinion. In order to properly cover the subject, I would like to base my thoughts on the answers to three questions:

1. Is there a definite shortage of practitioners to adequately supply rural Manitoba?
2. How real is this shortage?
3. What can be done to supply the need and, in particular, what contribution can the Manitoba Association make?

First question then, "Is there a shortage?" I think we will all agree that the answer is "Yes," and yet I honestly feel that the shortage is more apparent than real. In other words, while a survey would probably show a considerable proportion of the population of rural Manitoba to be at a distance from medical help, yet I feel that only a small proportion of the people of this Province are actually deprived of medical service. Perhaps I may best illustrate this by painting you a word picture of the situation around Neepawa, which, as you know, has been my home town and the location of my practice for over 34 years. Within a radius of 30 miles, and excluding the town of Neepawa, there have been in the past 7 doctors, their practices being carried on in such towns as Arden, Franklin, and Brookdale. Thirty years ago these were thriving towns—with banks, hotels, and cafes in each, but during the intervening years even these public services have closed down, with the result that the towns are really only shadows of their former selves. In addition, with the introduction of tractor farming, we now find frequently only a man and his wife on a section of land where formerly there would probably be 10 or 12 people living, and I believe our district is typical of most Manitoba communities, or perhaps I might sum it all up by saying that there has been a decided influx into the larger towns and cities. Coupled with this situation is the fact that whereas 30 years ago we drove to the country often with teams to contact our patients, now, in an exceedingly large proportion of cases, the patients are brought to our offices and hospitals.

I have purposely laboured this point, because I believe it is most essential that we get a true picture of conditions in Manitoba in order that we may properly assess the need for further rural medical supply.

Now the second question, "How real is this shortage?" I have taken the trouble to contact several practitioners in other parts of the Province in order to determine their findings in this matter. Following these conferences I am definitely of the opinion that the shortage in the number of doctors is in no way comparable to the number suggested by certain groups. In fact, I understand that in some cases it has been suggested that we need 200 more men to adequately serve Manitoba. Personally, I feel that if that number were cut in four and 50 extra men were available for this work, rural Manitoba would definitely have a far better coverage than it has ever had in the past. It probably would be difficult to make the arrangement, but Winnipeg has over 500 medical practitioners as compared to 300 before the war; in other words, is it not a matter of decentralization, or, to state it bluntly, if even 50 of the men now practicing in the city can be distributed throughout the Province our problem of rural coverage would be solved.

With the improved condition of our highways, and indeed many of the rural roads, there are very few people who are more than an hour's distance from a doctor, and, in fact, emergency cases within 3 or 4 hours of a large medical centre.

Before passing on to our final question it has occurred to me that we might ask ourselves why are the medical men in such numbers gravitating to the cities and larger towns? There are probably 3 or 4 answers to this question. First of all, because there are good hospitals available wherein treatment of their patients can be carried out—secondly, there are good schools for the children and colleges for the older members of the family. Thirdly, the social life is probably preferred, especially by the wives of the doctors, and, lastly, it is quite probable the men feel there is a better chance of getting to the top in these urban centres. In any case that is the situation as we find it.

Now then, our third and most important question—"What can be done to satisfy the need for more rural practitioners?" There are three bodies who seem to me can make a definite contribution to the solution of this problem:

1. The University.
2. The Governments (Provincial and Municipal).
3. The Manitoba Medical Association.

The University is making at least a partial contribution by admitting to its First Year class a number of extra men. It is very doubtful whether this action will contribute to any extent to the solution of the problem, chiefly because so many of our graduates find locations outside of the Province, and the situation is not likely to be changed.

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There is no doubt that there is general agreement also that the undertaking of graduates to practice 3 years in Manitoba in fulfillment of a contract, which a student entering medicine may sign, will not bring any immediate relief to districts lacking medical services either in 5 years time or later on. Perhaps the University can make its best contribution to this problem by emphasizing the advantages of General Practice. It will be apparent to all that the standards advocated by the teachers in the Medical College have been of a high order, and these teachings have inspired in the Graduates a desire to be among the first in the field.

There is in Neepawa an English chap, a decorator, over 80 years of age, whose life was despaired of more than 20 years ago, but who has been kept in exceptionally good physical condition by injections of liver extract. He is a bit of a philosopher, and on one occasion was telling me of his school teacher, who also it seems inspired his Students to high achievements, and this was one of his trite sayings: "Never carry bricks to a bricklayer—always lay the bricks yourself!" The inference is obvious, and the high place of medical men in the Province of Manitoba in the esteem of laymen is a tribute to the work of their teachers.

In addition to placing emphasis on the advantages of general practice, an arrangement for sending students into rural Districts that they may work with country practitioners, as has been suggested, might be well worth while.

What part, we ask, may be played by the Provincial and Municipal Governments? Here we may agree, I think, that these groups can make a definite contribution to the solution of the problem by improving the social conditions under which a rural practitioner might work. This might include:

(a) Subsidizing the Practitioner, thus providing some measure of security, if an arrangement can be made whereby his income could be brought up to at least the minimum paid to Municipal Doctors.

(b) Assistance could be given in providing for the erection of a home, or the securing of one already built, which would adequately serve as a home for the Doctor, his wife, and his growing family.

(c) Roads are being gradually improved, but a special effort might be made for better road conditions in some of the more remote parts of the Province.

To put it very bluntly, the rural Practitioner should be insured of at least an adequate income and moderately comfortable living conditions.

May I again paint just a brief word picture before I close? Let us take as an example the Town of Kelwood, just an average country town, but it has good highway facilities. It is served by Hydro so that it would be comparatively easy for a doctor there to have an office lighted by electricity and heated with the assistance of a stoker. He could have in his home modern electrical fixtures, including electric ranges, refrigerators, lamps, and heating equipment. In other words, he can have almost all the comforts enjoyed by the urban Practitioner.

One point which so far I have neglected, but, which I think is important, is this, that any recent graduate spending, say 5 years, in rural practice in such a town would gain experience which would be invaluable should it be his intention to later specialize or confine his work to city practice.

It has been further suggested that a solution to the problem might be obtained by importing practitioners from the British Isles or the Continent. Now one of the reasons why men hesitate to go to the country is because of the rigors of our winter climate. The men feel that they would not be happy carrying on under such conditions. To me it seems obvious that transferring men from across the seas would be a poor solution to the problem, as these men would take years to become acclimatized, and to fit in to the scheme of medicine as practiced here, and I believe they would be uniformly unhappy.

Finally, what about the Medical Association?

Here again, I believe our Society can make a definite contribution to the solution of this problem. Not perhaps as definite as some would wish. For instance, a year ago Mr. George N. McConnell, speaking at a luncheon meeting of our Association, said, "With the greater interest that is being displayed by rural people in medical care, and the reluctance of doctors to practice in rural areas, coupled with the greater tendency to group practice among doctors, I believe it is the responsibility of the doctors to give a greater equity of service. In other words, distribute the service they provide, or else the people are going to insist on more doctors being trained until we have a surplus of doctors and the competition will be such that more doctors will seek rural practice."

Issue must be taken with this statement, for the Medical Association as such should never be expected to use coercion, or in any way regiment the course of action of its members. Rather there should be at all times freedom to choose locations and to change these locations at will.

In contrast, however, there are very definite things the Medical Association can do. First, and of supreme importance, is that it should at all times exhibit a spirit of co-operation and goodwill with the University and with the Government.

Evidence of this is seen in the appointment,

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by the Association, of two members to the Committee of Six, the other members being from the Government and from the University. Our appointees are Dr. Thorlakson and Dr. Hillsman, who have already given much time and thought to the solution of the problem. And I am sure it is the wish of all members of this body that the Government and the University should feel free at all times to seek counsel and direction from any members of the Association.

Secondly, I believe the members of this Association can make a definite contribution to the solution of the problem by personal contact with those seeking locations for practice. How often a word of kindly advice has been responsible for a complete change in a person's plans—suggestion rather than coercion may bring results well worth while.

Thirdly, and with this I close, the Association has seen fit to set up an Advisory Committee, to assist in the solution of the problem. This Committee, composed of our Executive Secretary, Dr. Macfarland, Dr. Burton Stewart and Dr. Tony Scott, has available at all times information re locations, number of people to be supplied, availability of housing and other accommodation and such other information as might be of value to a practitioner in deciding a location.

I feel that I have used the personal pronoun much too often—that I have introduced little that is new, and that I have proposed nothing very definite in the solution of this difficult problem. If, indeed, I have stimulated any useful thoughts in the minds of my hearers, I shall have accomplished the purpose of the presentation.

Scholar in Medical Science Program Announced by Markle Foundation

$250.000 Annually Available for Five-Year Post-fellowship Grants Beginning 1948-49

An opportunity to start a career in academic medicine is offered to young scientists with the necessary training to hold a regular faculty appointment and to conduct original research through a new programme of "post-fellowship" grants, announced by the John and Mary R. Markle Foundation. The purpose of the programme, according to John M. Russell, Executive Director of the Foundation, is to attract much-needed talent to academic medicine by giving promising young scientists academic security and financial assistance for a period up to five years. The programme will be conducted in co-operation with accredited medical schools in the United States and Canada. Grants of $25,000, payable to the co-operating school at the rate of $5,000 annually for a five-year period toward the support of each successful candidate or his research or both, will be available beginning with the academic year 1948-49. If the plan proves successful, the Foundation will appropriate a total of $1,250,000 to the schools by 1953.

Candidates will be recommended by medical schools and will be limited to young men and women with a particularly strong interest in research and teaching in any of the clinical or pre-clinical sciences, or in the sciences basic to medicine. They will have had training in some special field or combination of fields to qualify them to receive a regular faculty appointment and to conduct original research. The final choice will be made, on the basis of the schools' recommendations, by regional committees appointed by the Foundation. The young scientists chosen will be known as "Scholars in Medical Science." No fixed number of scholars will be appointed in any year, but it is expected that approximately fifty will receive appointments during the five-year period. For each scholar the school will determine salary and academic rank, encourage research by setting reasonable limits upon teaching and other non-research activities, provide laboratory facilities, and, if necessary, make a financial contribution toward the support of his work.

The Scholar programme places the emphasis on the personal qualities and scientific and teaching abilities of the men and women chosen, rather than upon particular research projects or teaching fields in which they may be interested. The programme is the result of a survey of medical research and education, recently made by the Foundation, which shows that while there are scholarships and other forms of financial aid for the student in the course of his scientific training and while there are funds available to the scientist once his name is made, there are few sources of help at the beginning of the career of the man who chooses academic medicine.

A pamphlet covering the details of the plan has been sent to all deans of accredited medical schools, and persons interested in being considered as candidates are referred to them for further information.

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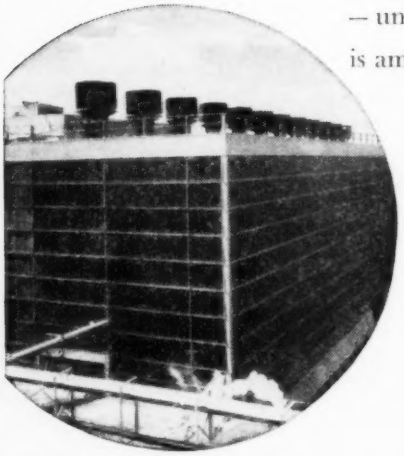

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ASSOCIATION PAGE

Reported by M. T. Macfarland, M.D.

October 15th, 1947

Wednesday, October 15th, was a busy day in medical circles. In addition to those calls and duties which normally occupy the hours of the general practitioner and specialist alike, were added an unusually large number of extra-curricular activities. The all-day meting of the Manitoba Hospital Association attracted many medical men who act as whole or part-time administrators. The Council of the Winnipeg Medical Society held a luncheon meeting at noon. In the afternoon the Council of the College of Physicians and Surgeons of Manitoba met in annual session. The meeting of the Executive of the Manitoba Medical Association was followed by the President's dinner to the retiring Executive, at which the new members were also welcomed. Later, the adjourned annual meeting of the Association was held.

Adjourned Annual Meeting

Approximately one hundred members of the Association attended the Adjourned Annual Meeting of the Manitoba Division of the Canadian Medical Association, which was held in the Tapestry Room of the Royal Alexandra Hotel, at 8.00 o'clock on the evening of Wednesday, October 15th. In calling the meeting to order, Dr. J. R. Martin, President, explained that the meeting had been called to consider several matters of importance to the profession for which there had been insufficient discussion time in June.

1. Dr. Martin delivered the Presidential Address, the subject of which was the "The Need for Further Medical Services in Rural Manitoba." A copy of the paper appears elsewhere in this issue. Dr. Martin then asked Dr. P. H. McNulty to come to the platform, and presented him with a Presidential Certificate—a small token of appreciation for services rendered on behalf of the Association during his term of office.

2. The first item of business considered was the **Manitoba Medical Service.** Dr. W. G. Beaton, Chairman of the Board of Trustees, read the report which had been presented at the time of the Annual Meeting in June, and copies of which were subsequently mailed to each member of the Association with the August issue of the Manitoba Medical Review. By way of supplementary report, Dr. Beaton outlined the need for improvement of services rendered and a healthier state of finance. A more accurate standard of defining a specialist, elimination of dual specialty, whereby a doctor may designate one major and one minor specialty, and a revision of the Fee Schedule, with one fee for ordinary surgical procedure, and another fee for services of a recognized specialist, were suggested by Dr. Beaton. Dr. P. H. McNulty explained several of the difficulties which had arisen during his term of office as President, when the revision of the Fee Schedule had been undertaken. Dr. E. S. Moorhead, Medical Director of the Manitoba Medical Service, outlined the point of view of the community and that of the doctor. Complaints received from the public were almost as numerous as those received from the doctors. The Manitoba Medical Service had been instructed to make Plan "B" solvent, but permission to reduce services to the public or fees paid to the doctor were not to be considered. Subscriber's dues had been raised 12%, but use of the new Fee Schedule for payment of accounts since February 1st, 1947, had resulted in an increase of from 25% to 50%. The Manitoba Medical Service has the largest contract fee scale of any plan on the continent, and is the only scheme with a specialist fee for common procedures. Dr. Moorhead briefly reviewed the conditions existing fifteen years ago in the setting up of a Medical Relief Fund. He considered that the Manitoba Medical Service had not been properly publicized to the profession. He foresaw two important tests which any scheme must face, that it would weather a regression or a depression, also that when provincial or national health services were instituted it would be entrusted with a major share in formulating and administering the plan. At present the scheme is big business with potential subscribers waiting to be installed. Dr. Moorhead made a plea that the regulations be altered less frequently, and intimated that Mr. Frank Smith, Director of the Associated Medical Care Plans in the United States has consented to come to Winnipeg to speak to the profession in the near future. Dr. Hollenberg contended that with all its faults the Manitoba Medical Service is one which the people are demanding and appreciate. The initial contract with the Manitoba Hospital Service Association had proven most unsatisfactory. He felt that the Manitoba Medical Service must continue since the work might otherwise pass to individual professional groups. Dr. Digby Wheeler, Treasurer, and Chairman of a committee to bring in proposals for reorganization of Plan "B," outlined steps which had been taken to assure more efficient functioning of the plan. Since September 30th, the Manitoba Medical Service has been completely separated from the Manitoba Hospital Service Association. Offices have been set up on the second floor of a new block on Portage

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Avenue East. Part of the floor had been sublet with the idea that if the Service expands, the lease to the sub-tenant may not be renewed. Expenditure had been necessary for the partitioning of the space, decorating, purchase of complete office equipment, bookkeeping machines, addressograph, etc. The cost of alterations has been paid for, as has the cost of office equipment. Recommendations of the committee to revise Plan "B" had been presented to the Board of Trustees on Friday, October 10th, and had been accepted by that body. Mimeographed copies were passed to those attending the meeting. Resolutions that the printed report of the Manitoba Medical Service be adopted, and that ratification of the "Recommendations for the Improvement of Plan 'B'" be approved by the Association were passed by the meeting. In proposing a hearty vote of thanks to Dr. E. S. Moorhead for his efforts in connection with the affairs of the Manitoba Medical Association, Dr. M. R. MacCharles discussed some of the organizational difficulties which had been encountered. Dr. G. S. Fahrni seconded the resolution, which was heartily approved by the meeting.

Adoption of the printed report of the **Committee on Economics**, which included reference to detail of the Municipal Doctor Contract, was moved by Dr. A. Hollenberg, seconded by Dr. W. J. Boyd, and carried by the meeting.

Dr. Henry Funk reported concerning the progress which the **Negotiating Committee** had made in the matter of revision of the **Workmen's Compensation Board** Fee Schedule.

At the last meeting of the Executive Committee, the resignation of Dr. H. M. Edmison was accepted with regret, and the request was made that Dr. C. B. Schoemperlen carry out the duties for the remainder of the Association year. At the Adjourned Annual Meeting Dr. Schoemperlen was confirmed as **Honorary Treasurer** for the year 1947-1948.

Before retiring from office, the President, Dr. J. R. Martin, called to the attention of those present that many societies have some insignia which is passed by the President to his successor in office. He presented to the Association a gavel which, when suitably inscribed, will remain in the custody of the Association, to be passed to the succeeding chief executive. In accepting the gavel, Dr. Richardson expressed gratitude for the gift, and his appreciation for the high honour which had been shown him by his confreres in being named President.

◆

At the Annual Meeting in 1946, a resolution requested that three members from the **College of Physicians and Surgeons** and three from the Manitoba Medical Association be appointed a committee to study the relationship of the two bodies, to define the sphere of influence of each, and to determine how closer co-operation might be effected. The terms of reference were broad, but the actual naming of the committee did not occur until the May meeting of Council and of Executive. The C.M.A. meeting and vacations intervened, and the committee had not been called when illness necessitated the resignation of Dr. W. G. Campbell, who for 18 years graced the office of Registrar. Dr. B. D. Best, in addition to his duties as President, also assumed those of Acting Registrar. On September 14th, when the joint committee met, the suggestion was made that the Executive Secretary of the Manitoba Medical Association might be appointed Registrar of the College of Physicians and Surgeons, and that the business office and secretarial staff might be combined, leading to greater efficiency. The Council of the C.P. and S. approved the scheme on October 15th, and a verbal progress report was given at the Adjourned Annual Meeting of the Association on the evening of the same day. So begins an era which it is hoped will bring organized medicine into a closer and more harmonious working arrangement.

◆

Brandon and District Medical Association

A meeting of the Brandon and District Medical Association was held at the Sanatorium, Ninette, on Wednesday afternoon, October 8th.

Present were: Doctors A. L. Paine, President, E. H. Dobbs, A. H. Povah, F. P. Hulke of Ninette; W. F. Stevenson of Belmont; J. B. Baker, R. F. M. Myers, J. A. Findlay, S. J. S. Peirce, H. S. Sharpe, F. J. E. Purdie, H. S. Evans, S. L. Carey, J. G. Fyfe, R. O. McDiarmid, A. J. Andrews of Brandon; J. R. Martin, E. L. Ross, D. L. Scott, Henry Funk and M. T. Macfarland of Winnipeg.

At the business section a short report on the negotiations with the Workmen's Compensation Board for increased fee schedule was given by Dr. H. Funk. Dr. R. P. Cromarty was reappointed representative from the Society to the Executive of the Manitoba Medical Association.

Dr. Bruce Chown, Children's Hospital, Winnipeg, spoke on the Rh Factor, his remarks being illustrated by blackboard and colored slides. Dr. Henry Funk, who is also Orthopaedic Consultant to the Manitoba Sanatorium Board, spoke on "Common Foot Ailments."

While the scientific session was being held, wives of the visiting doctors were entertained at the home of Mrs. A. L. Paine. Later, the doctors and their ladies were guests of the Hospital Staff at dinner. Following a sumptuous repast and community singing, Dr. Paine called on Dr. J. R. Martin, President of the Manitoba Medical Association, to speak. For his subject, Dr. Martin chose a

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travelogue through the Eastern States and Ontario, during which he saw several major league baseball games, met and renewed friendships with many of the individual players, and brought back numerous autographed baseballs. The chatty and informative lecture was greatly enjoyed by all.

Northwest District Medical Society

A meeting of the Northwest District Medical Society was held in the Masonic Hall, Birtle, Man., on October 22nd, 1947, at 3.00 p.m.

Present were: Doctors T. I. Brownlee, President, and T. W. Shaw, Russell; D. Braunstein, Binscarth; W. J. Sharman, Angusville; H. L. Edwards, Birtle; A. D. Maclean, Elkhorn; E. D. Hudson, Hamiota; R. K. Chalmers, Miniota; J. G. Fyfe, Brandon; J. G. A. Pincock, Oak River; W. A. Shaver, Rossburn; A. R. Birt, A. Gibson and M. T. Macfarland, Winnipeg, W. A. Large, Roblin.

1. In the absence of Dr. J. E. Hudson, the minutes of the previous meeting were read by Dr. E. D. Hudson and approved. A resolution of the Southern District Medical Society concerning professional work to be done in hospitals under the Manitoba Health Services Act, was read and discussed. The resolution was approved by the meeting, to be sent to the Manitoba Medical Association.

2. Dr. A. R. Birt spoke on "Common Skin Diseases," dealing chiefly with Acne Vulgaris and Acne Rosacea. Illustrative cases were presented Dr. A. Gibson presented various aspects of "The Mechanics of the Spine." Unfortunately, lack of time prevented a fuller presentation of this subject.

3. Dinner was served at the Commercial Hotel, when approximately twenty-one persons were seated. Following the meal, short remarks were made by the visitors. Dr. Birt outlined something of the work undertaken by the proposed Medical Centre and the Children's Hospital, Winnipeg, and stressed the fact that a great deal of the work is devoted to out-of-town children.

4. For the information of the assembled guests Dr. M. T. Macfarland read an extract from the August, 1947, issue of the Western Municipal News: "The Council of the Rural Municipality of Birtle (Manitoba) were in session on Saturday, July 12th, and at the noon recess were the guests for lunch at the home of the Secretary-Treasurer, Mr. J. H. Kitching.

Mrs. Kitching served Lemon Pie for dessert, made from a lemon grown in Mr. Kitching's Office. Mr. Kitching's hobby is growing citrus fruit in the office and at the present time he has an orange tree with 31 oranges on it and a lemon tree with one lemon and a large number of blossoms. The lemons grown on this tree are quite large, the largest he has ever grown weighed 21 ozs., and measured 20 inches in circumference. This particular lemon made four lemon pies with some juice left over for drinks. The lemon used for the members of the council weighed 16 ozs." Dr. Macfarland remarked that when he and Dr. Birt had called at Mr. Kitching's office, the orange trees displayed twenty-six oranges of varying size, while the lemon tree had blossoms and one lemon.

5. The president announced that unless suitable weather and open roads favoured the holding of another meeting in November, none might be held until May or June, 1948.

Winnipeg Medical Society

At the last regular meeting of the Society, which was held on Friday, Oct. 17th, a Symposium on Pre-operative Care was contributed by Drs. K. R. Trueman, J. W. Macleod, D. G. Revell and J. S. McInnes. Dr. Anna Wilson gave a most interesting travelogue of her recent visit to the Medical Women's International Association in Amsterdam during June, and the Bicentenary and the Dublin Rotunda in July. Several of the souvenirs which Dr. Wilson amassed during the trip were exhibited. The meeting was well attended.

The Guest Speaker at the next meeting of the Winnipeg Medical Society, which will be held on Friday, November 21st, will be Mr. Frank Smith, Director of the Associated Medical Care Plans.

Out-of-town physicians who are interested in the subject are also invited to attend.

Mr. Smith has had a wide experience with prepaid medical care and, no doubt, will contribute to an understanding of our own problem of prepaid medical care.

College of Physicians and Surgeons Officers

Elected for the Ensuing Year Are

President	Dr. W. F. Stevenson
Vice-president	Dr. C. B. Stewart
Registrar	Dr. M. T. Macfarland
Treasurer	Dr. T. H. Williams

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SOCIAL NEWS

Reported by K. Borthwick-Leslie, M.D.

To Dr. and Mrs. V. L. Rosenfield, a daughter, Barbara Nan, October 22nd.

♦

Dr. and Mrs. T. J. Lone, nee Isobel Barron, Killarney, Manitoba, announce the birth of Barbara Joyce.

♦

May we convey our sincere sympathy to the friends and relatives of our well loved Professor and Clinician, Drs. A. T. Cameron and F. J. Hart.

♦

Thanks, Dr. Sedziak, it is a pleasant surprise to receive tokens of appreciation.

♦

Dr. W. F. Stevenson, Belmont, Manitoba, was elected President of the Manitoba Division of the College of Physicians and Surgeons at the Annual Meeting. He succeeds Dr. Brian D. Best.

♦

Dr. M. T. Macfarland now has assumed the grief and glory of Registrar for the C.P. and S., succeeding Dr. W. G. Campbell, who has resigned after 18 years of service.

♦

Dr. Kenneth Davidson is doing post-graduate work in the Basic Sciences of Dermatology in Chicago for one year. The course is extensive, and given by the Universities of Chicago, Illinois, and North Western.

♦

Congratulations to Dr. R. W. Richardson, the new president of the Manitoba Medical Association. Roy succeeds Dr. J. Roy Martin, of Neepawa and Winnipeg.

♦

The Manitoba Medical Women met November 3rd, at Dr. Anna Wilson's home. A most enjoyable evening was spent, mostly listening to Dr. Margaret Owens and Anna recounting their trip to Amsterdam and Dublin. We "stay-at-homes" are green with envy.

♦

Correction: At Dr. F. G. McGuinness' request, I have to report that he is not our first Fellow of The Royal College of Obstetricians and Gynaecologists, London, England, but that Dr. D. S. McKay received that honor. Thanks, Fred, hats off to your grand predecessor.

♦

Another old friend, Dr. W. L. Falconer, of Ottawa, has been appointed Assistant Director of Indian Health Services. He will be responsible for medical treatment of about 125,000 Indians and 7,000 Eskimos in all parts of Canada.

You just made the Column, Ben. Congratulations to Dr. and Mrs. C. B. Schoemperlen on the birth of a daughter, November 2nd.

♦

Sincere congratulations to Dr. T. E. Holland on his appointment as Chief Medical Officer of the Manitoba District of the Canadian Pacific Railway. Ed. has been consulting surgeon for the Canadian Pacific Railway since 1932. He succeeds Dr. John Gunn, C.B., O.B.E., F.R.C.S., who has held the appointment since 1920.

♦

Honors come thick and fast. The degree of Fellow of the College of American Pathologists was conferred on Dr. T. H. Williams recently at a Convocation of Pathologists in Chicago.

♦

Dr. Matthew Kiernan also is to be congratulated on receiving the American Board of Roentgenology at Atlantic City.

♦

Dr. Helen Winsor, though missed at the General Hospital, is enjoying her post-graduate work in Anaesthesia under Dr. Tovell, Hartford, Connecticut.

♦

Dr. and Mrs. R. Yaholnitsky, of Baldur, Manitoba, visited briefly in Winnipeg en route to New York, where the doctor will do post-graduate work.

♦

Dr. and Mrs. G. W. Whitaker, of Selkirk, will make their future home in Kenora, Ont. Numerous farewell parties and presentations to them have been arranged by their friends in Selkirk.

♦

Dr. Arthur Childe was a recent guest of Chalfonte-Haddon Hall, while attending the convention of the Roentgen Ray Society.

♦

Dr. Betty McKim, Child Psychologist, will be assistant to Dr. Gordon Stephens, City Child Guidance Clinic. She is sponsored for one year by the ever energetic Junior League.

♦

Mr. and Mrs. R. Thornton announce the engagement of Reta Merle to Gordon Alexander, youngest son of Dr. and Mrs. J. M. MacFarlane. The wedding will take place November 15th.

♦

Dr. and Mrs. Richard Knox, from Raleigh, N.C., are renewing friendships in Winnipeg.

♦

Dr. and Mrs. Beverley Smallman announce the arrival of Sylvia Gail, October 17th.

* Reg'd Trade Mark

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Dr. C. G. Sheps has been appointed associate professor of Public Health Administration at the University of North Carolina at Chapel Hill. He has been on a year's leave of absence from the Saskatchewan Department of Public Health, attending Yale University on a Rockefeller Foundation fellowship, where he obtained his Master of Public Health Degree. His wife, Dr. Mendel Sheps, also a University of Manitoba graduate, plans to practice in North Carolina.

♦

Dr. and Mrs. H. T. Peak, Transcona, have returned from a holiday in Eastern Canada.

♦

Dr. and Mrs. W. J. Elliott announce the arrival of Nancy Joan, October 26th.

♦

We hear, gossip of the grape vine, that Dr. Rodney Chadwick and Miss Patricia Currie, a recent graduate of the Winnipeg General Hospital, plan to be married and leave in the near future for China. Rod has been appointed to the teaching staff of the University at Canton. Best wishes to both.

♦

Dr. and Mrs. E. W. Pickard, Wildwood Park, announce the birth of a daughter, September 27th.

Dr. and Mrs. C. U. P. McCullough, Wildwood Park, announce the arrival of Patricia Arlene, October 27th.

Gee! I wonder should I move to Fort Garry!!

♦

Dr. and Mrs. J. C. Dundie, nee Isobel Innes, Saskatoon, announce the birth of Barbara Jean.

♦

Dr. and Mrs. Sam Luginsky, nee Sylvia Kobrinsky, announce the birth of Michael Charles. Congratulations "Slug."

♦

Dr. Dorothy Hollenberg left by plane recently for a brief holiday in Eastern Canada. Best wishes for a speedy convalescence, Dorothy.

♦

Dr. and Mrs. Edmund Sandborn, Hamilton, Ont., announce the birth of a daughter in July.

♦

Dr. and Mrs. R. M. Ramsey announce the arrival of William John in September.

♦

Dr. and Mrs. H. D. Kitchen spent an enjoyable week in Rochester, Minnesota, where Dr. Kitchen attended a meeting of the Alumnae Association of the Mayo Clinic.

Abbott Laboratories Open New Plant

Four new members were appointed to the Board of Directors at the annual meeting of Abbott Laboratories Limited, held in Montreal on Sept. 22nd. They are Dr. E. H. Volwiler, Executive Vice-President, and Mr. George Cain of the parent house in North Chicago; Dr. L. Delphiner, manager of production, and J. H. Marchand, general sales manager, of the Canadian Company. This was also made the occasion of the official opening of Abbott's spacious and modern plant on the Cote de Liesse.

At the opening ceremonies of this ultra-modern plant dedicated to the medical world, H. D. Cook, general manager and director of Abbott's, was host to a large gathering of guests and visitors. Offices were tastefully decorated with flowers and the beautiful landscaping, highlighted by a trim border of coral pink geraniums, set off the spic-and-span building to advantage.

The list of distinguished guests included S. DeWitt Clough, Chairman of the Board; R. E. Horn, President; F. H. Young, Vice-President; E. A. Ravenscroft and A. W. Bays, secretary of Abbott Laboratories, North Chicago, as well as several other American technical experts and the heads of Canadian medical and pharmaceutical associations. Special guests were Mayor Schofield, of the Town of Mount Royal (in which the new plant is located) and his entire Town Council, and M. Papineau-Couture, representing the Department of Health, Ottawa. Parties of guests were taken on specially conducted tours of the new Abbott plant to inspect the up-to-the-minute manufacturing, control and shipping facilities which Abbott has assembled in this remarkable new pharmaceutical plant.

New Air Express Service Announced

The dedication ceremony, which was marked by favourable comments on the modernity and comprehensiveness of the Abbott facilities, coincided with an announcement by Mr. Cook of the latest improvement to Abbott Laboratories' service to pharmacists and the medical profession.

Abbott's new Air Express Service, recently initiated, now provides for payment by the company of half the cost of shipping Abbott pharmaceuticals by air to any part of Canada. This brings the products of this modern plant within hours of almost any location in the Dominion. Abbott's situation of the Cote de Liesse makes it possible to place emergency shipments of Abbott pharmaceuticals on board planes leaving Dorval airport as late as fifteen minutes before scheduled take-off time.

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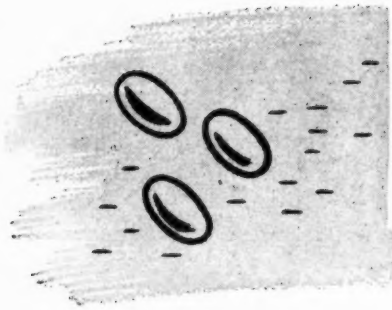

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Liver Concentrate - -	equivalent to 1 Gm. fresh liver
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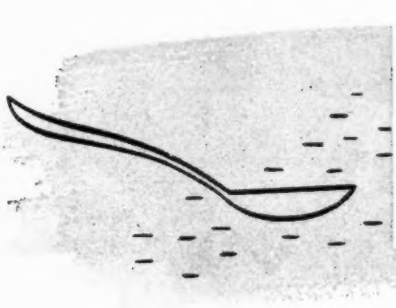

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Copper Sulphate	0.228 mg. (0.003 gr.)
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Thiamin Chloride - -	0.029 mg.
Riboflavin - - - -	0.038 mg.
Niacinamide - - - -	0.475 mg.

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MONTREAL CANADA 446

Department of Health and Public Welfare

Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1947		1946		TOTALS	
	Aug. 10 to Sept. 6,'47	July 13 to Aug. 9,'47	Aug. 11 to Sept. 7,'46	July 14 to Aug. 10,'46	Dec. 29,'46 to Sept. 6,'47	Dec. 30,'45 to Sept. 7,'46
Anterior Poliomyelitis	336	111	17	6	449	25
Chickenpox	38	74	35	55	857	892
Diphtheria	3	2	10	9	62	130
Diphtheria Carriers	0	0	5	2	16	18
Dysentery—Amoebic	0	0	0	0	0	1
Dysentery—Bacillary	2	3	0	0	7	1
Erysipelas	3	1	5	4	30	55
Encephalitis	35	2	3	0	39	4
Influenza	30	21	6	8	135	177
Measles	42	195	69	244	6487	1660
Measles—German	0	0	0	5	32	21
Meningococcal Meningitis	1	1	3	2	10	14
Mumps	18	43	70	72	1185	1894
Ophthalmia Neonatorum	0	1	0	0	1	0
Pneumonia—Lobar	11	10	7	10	153	133
Puerperal Fever	0	0	0	1	2	2
Scarlet Fever	5	6	19	18	141	434
Septic Sore Throat	0	0	4	4	13	31
Smallpox	0	0	0	0	0	0
Tetanus	1	2	0	0	4	1
Trachoma	0	0	0	1	2	2
Tuberculosis	232	232	83	74	955	653
Typhoid Fever	1	1	3	3	5	17
Typhoid Paratyphoid	0	0	0	0	0	2
Typhoid Carriers	0	0	0	0	1	2
Undulant Fever	2	0	1	3	7	19
Whooping Cough	112	102	26	32	860	248
Gonorrhoea	198	147	201	180	1324	1695
Syphilis	36	49	50	40	415	468
Diarrhoea and Enteritis, under 1 yr.	12	18	17	26	111	150

Four-Week Period, August 10th to September 6th, 1947

DISEASES (White Cases Only) *Approximate population.	*718,699 Manitoba	*906,000 †Saskatchewan	*3,825,000 Ontario	*2,962,000 Minnesota
Anterior Poliomyelitis	336	72	218	77
Chickenpox	38	35	178	—
Diarrhoea & Enteritis, under 1 yr.	12	—	—	—
Diphtheria	3	4	10	13
Diphtheria Carriers	—	—	—	1
Dysentery—Amoebic	—	—	4	2
Dysentery—Bacillary	2	—	1	—
Erysipelas	3	1	3	—
Influenza	30	—	27	3
Malaria	—	—	1	12
Measles	42	23	217	82
Measles—German	—	1	51	—
Meningococcal Meningitis	1	1	4	3
Mumps	18	20	359	—
Pneumonia—Lobar	11	—	—	—
Scarlet Fever	5	2	66	34
Septic Sore Throat	—	—	7	—
Tetanus	1	—	—	—
Tuberculosis	232	15	77	218
Tularemia	—	—	1	1
Typhoid Fever	1	1	2	—
Typh. Para-Typhoid	—	—	1	—
Undulant Fever	2		4	20
Whooping Cough	112	12	304	400
Gonorrhoea	198	—	369	—
Syphilis	36		168	
Leth. Encephalitis	35	18	1	1

†Three weeks only.

DEATHS FROM COMMUNICABLE DISEASES

For 4-Week Period Aug. 19th to Sept. 9th, 1947

Urban—Cancer, 34; Influenza, 2; Lethargic Encephalitis, 1; Pneumonia Lobar (108, 107, 109), 2; Pneumonia (other forms), 5; Tuberculosis, 4; Whooping Cough, 2; Dysentery, 1; Tetanus, 1; Hodgkin's Disease, 1. Other deaths under 1 year, 23. Other deaths over 1 year, 135. Stillbirths, 16. Total, 174.

Rural—Cancer, 12; Pneumonia Lobar (108, 107, 109), 3; Pneumonia (other forms), 7; Poliomyelitis, 1; Syphilis, 3; Tuberculosis, 8; Dysentery, 2; Meningitis, 1; Hodgkin's Disease, 1; Diarrhoea and Enteritis (under 2 years), 5. Other deaths under 1 year, 19. Other deaths over 1 year, 114. Stillbirths, 8. Total, 141.

Indians—Pneumonia (other forms), 2; Tuberculosis, 6; Diarrhoea and Enteritis (under 2 years), 5. Other deaths under 1 year, 1. Other deaths over 1 year, 4. Stillbirths, nil. Total, 5.

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DIPHTHERIA
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PERTUSSIS VACCINE (For Prevention of Whooping Cough)

A modification in the concentration of pertussis vaccine has recently been made by the Connaught Medical Research Laboratories, so that the vaccine formerly containing 15,000 million killed organisms *(H. pertussis* from strains in Phase 1) per cc. now contains approximately 22,500 million killed organisms per cc., permitting the administration of three doses of 1 cc. at monthly intervals, and a reinforcing dose of 1 cc. after an interval of at least three months.

DIPHTHERIA TOXOID AND PERTUSSIS VACCINE (Combined)

Diphtheria toxoid has been combined with the new concentration of whooping cough vaccine. The new combined product is also administered in three doses of 1 cc., with a reinforcing dose of 1 cc.

DIPHTHERIA TOXOID, PERTUSSIS VACCINE & TETANUS TOXOID (Combined)

For protection against tetanus as well, a triple antigen has been introduced by the Laboratories. This product contains diphtheria and tetanus toxoids combined with the new concentration of whooping cough vaccine and is administered in three doses of 1 cc., followed by a reinforcing dose of 1 cc.

ADVANTAGES

Two important advantages have been made possible by this change:—

A dose of 1 cc. replaces the dose of 2 cc. as formerly employed.

The reinforcing dose is included in each package.

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Department of Health and Public Welfare

Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1947 Sept. 7 to Oct. 4,'47	1947 Aug. 10 to Sept. 6,'47	1946 Sept. 8 to Oct. 4,'46	1946 Aug. 11 to Sept. 7,'47	TOTALS Dec. 29,'46 to Oct. 4,'47	TOTALS Dec. 30,'45 to Oct. 5,'46
Anterior Poliomyelitis	112	336	15	17	561	40
Chickenpox	36	38	94	35	893	986
Diphtheria	3	3	15	10	65	145
Diphtheria Carriers	0	0	14	5	16	32
Dysentery—Amoebic	1	0	0	0	1	1
Dysentery—Bacillary	0	0	0	0	7	1
Erysipelas	0	3	3	5	30	53
Encephalitis	29	35	1	3	67	5
Influenza	8	30	9	6	143	186
Measles	47	42	78	69	6537	1738
Measles—German	0	0	1	0	32	22
Meningococcal Meningitis	2	1	2	3	12	16
Mumps	26	18	108	70	1211	2002
Ophthalmia Neonatorum	0	0	0	0	1	0
Pneumonia—Lobar	10	11	13	7	163	146
Puerperal Fever	0	0	0	0	2	2
Scarlet Fever	14	5	50	19	155	484
Septic Sore Throat	0	0	2	4	13	13
Smallpox	0	0	0	0	0	0
Tetanus	0	1	0	0	4	1
Trachoma	0	0	0	0	2	2
Tuberculosis	197	232	99	83	1152	752
Typhoid Fever	1	1	1	3	6	18
Typhoid Paratyphoid	0	0	1	0	0	3
Typhoid Carriers	0	0	0	0	1	2
Undulant Fever	0	2	0	1	7	19
Whooping Cough	65	112	38	26	925	826
Gonorrhoea	128	198	206	201	1552	1901
Syphilis	43	36	48	50	458	516
Diarrhoea and Enteritis, under 1 yr.	27	12	34	17	138	184

Four-Week Period September 7th to October 4th, 1947

DISEASES (White Cases Only) *Approximate population.	*718,699 Manitoba	*906,000 Saskatchewan	*3,825,000 Ontario	*2,962,000 Minnesota
Anterior Poliomyelitis	112	55	273	58
Chickenpox	36	71	143	—
Diarrhoea and Enteritis	27	—	—	—
Diphtheria	3	4	14	34
Diphtheria Carriers	—	—	—	31
Dysentery—Amoebic	1	—	5	3
Erysipelas	—	1	—	9
Infectious Jaundice	—	—	6	—
Influenza	8	—	46	1
Leth. Encephalitis	29	38	1	15
Malaria	—	—	—	18
Measles	47	29	126	127
Measles—German	—	2	26	—
Mumps	26	24	350	—
Meningococcal Meningitis	2	4	2	6
Pneumonia—Lobar	10	—	—	—
Scarlet Fever	14	4	109	45
Septic Sore Throat	—	—	4	—
Tuberculosis	197	37	115	312
Tularemia	—	—	—	1
Typhoid Fever	1	—	6	4
Typh. Para-Typhoid	—	3	3	—
Undulant Fever	—	—	10	27
Whooping Cough	65	28	390	363
Gonorrhoea	128	—	436	—
Syphilis	43	—	248	—

DEATHS FROM COMMUNICABLE DISEASES

For 4-Week Period Sept. 16th to Oct. 7th, 1947

Urban—Cancer, 49; Influenza, 1; Lethargic Encephalitis, 3; Pneumonia Lobar (108, 107, 109), 3; Pneumonia (other forms), 5; Poliomyelitis, 2; Syphilis, 3; Tuberculosis, 4; Diarrhoea and Enteritis (under 2 years), 1; Diseases of the skin, 1. Other deaths under 1 year, 19. Other deaths over 1 year, 163. Stillbirths, 17. Total, 199.

Rural—Cancer, 26; Lethargic Encephalitis, 2; Pneumonia Lobar (108, 107, 109), 3; Pneumonia (other forms), 5; Puerperal Septicaemia, 2; Syphilis, 2; Tuberculosis, 22; Whooping Cough, 1; Diarrhoea and Enteritis (under 2 years), 3. Other deaths under 1 year, 152. Other deaths over 1 year, 27. Stillbirths, 22. Total, 201.

Indians—Cancer, 1; Influenza, 1; Pneumonia (other forms), 2; Tuberculosis, 10; Diarrhoea and Enteritis (under 2 years), 3. Other deaths under 1 year, 7. Other deaths over 1 year, 10. Stillbirths, 1. Total, 18.

Epidemiology of Poliomyelitis and Encephalitis (Western Equine)

Dr. Maxwell Bowman

(Summary of Talk Given at Winnipeg Medical Society Meeting)

Epidemics of poliomyelitis have occurred in Manitoba in the following years, 1928, 1936, 1937, 1941 and 1947. The case fatality rates have been as follows: 9.9, 6.9, 4.6, 2.0, 1.1 respectively. Why this decrease, is it better reporting of cases or loss of virulence? Probably both. Certainly there has been less residual paralysis in 1941 and 1947 than in former epidemics. In 1947 most of the cases occur in the 5-14 year age group with a fair number in the 1-4 years and 15-29 years groups. One outstanding point is that 58 cases have been reported in the thirty years and over age group—surely these are not all polio.

Poliomyelitis is caused by a virus. Spread of infection is probably upper respiratory for three days before illness and the first three days of the illness—after that by bowel. During an epidemic the infection is probably very widespread and most people are exposed—whether they become ill or not depends largely upon their resistance. Resistance may be lowered by over exertion.

Encephalitis of the western equine type has occurred in Manitoba in epidemic form in 1941 and 1947. The case fatality rate in 1941 was 13.1 and in 1947 to date 9.1. This latter figure may be changed before the epidemic is over. Most cases are rural and it chiefly attacks infants and persons over 20 years of age. Over 70% of cases are males. This may be because of greater exposure to infection in outside occupations.

The disease is caused by a virus and it is thought the virus is passed from a bird or animal reservoir to its victims, men and horses, by a mosquito as vector. Many domestic birds and animals and some wild ones have been found to harbor the infection without showing symptoms of disease.

In 1942 and 1943 the Department of Health and Public Welfare did blood tests on a sample of population and found 19% and 3% respectively, to have antibodies against western equine virus. These positives were all employed in outside occupations. Of 497 negatives vaccinated against equine virus 51% became positive. This is not a high enough percentage to warrant wholesale vaccination every year for a disease which only appears at intervals of several years. Control may be by means of mosquito control. Further research is being carried on.

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